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ABSTRACT

A study was conducted to assess the relaticnship of attitudes held by vocational educators, influence of significant others, socioeconomic factors, and the attitudes of students, themselves, to male and female students' enrollment in either traditional or nontraditional programs of study in vocaticnal education. The sample included 641 secondary level vocational students studying in classes traditionally considered "hard core" male or female programs of vocational educaticn and 84 of their educators. Nontraditional subjects included 44 males and 227 females. Six instruments were emplcyed for data collectien. Five of these were constructed and validated in pilot studies. They measured career influences and attitudes of teachers and students toward nontraditional studies and work roles for males and females. Results of the study indicated that teacher attitudes, student attitudes (themselves), perceptions of significant others, and sociceconomic factors, in that order of significance, were useful variables for discriminating between traditicnal and nontraditicnal students of both sexes. Ninety-four percent of the female subjects and ninety-eight percent of the male subjects were correctly classified as "traditional" or "nontraditional" by a discriminant function loading with these variables. (Author/JH)

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FINAL REPORT

INTERACTION OF SEX ROLE BIAS IN ATTITUDES OF VOCATIONAL EDUCATORS AND STUDENTS ASSOCIATED WITH STUDENTS' ENTRY IN NON-STEREOTYPED PROGRAMS OF VOCATIONAL EDUCATION

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PREFACE

When this study of attitudinal variables and related factors contributing to students' decision to elect nontraditional courses in vocational education was begun nearly two years ago, little research charting the career development patterns of secondary students in such nontraditional programs had been done. Currently, however, with increased enrollments in these areas, numerous research activities are underway throughout the United States.

Hopefully, this report of the attitudes and career influences for a population of youth will give some insight and stimulate more questions regarding the factors which motivate such students to combat existing stereotypes by enrolling in vocational study programs considered by their parents, peers and teachers to be inappropriate for their sex. From the reported data, it is apparent that the attitudes of educators, regular teachers as well as vocational teachers, are critical factors in influencing the career development of students enrolled in nontraditional classes. It is also evident that nontraditional students need strong supportive counseling after enrollment in their classes, if their career development is to be fostered.

A study of women enrolled in traditional male vocational programs in secondary schools completed by Morgan V. Lewis and Lynn Warfield Kaltreider in 1976 provided data which was helpful in structuring the current study. Results of a similar investigation of nontraditional women studying in vocational education at the postsecondary level which

was reported by Roslyn D. Kane was also useful in the planning of this research. The writings and personal counsel of Mary L. Ellis, President of Ellis Associates, Inc., of College Park, Maryland, was also invaluable during the early structuring phases of this investigation.

Acknowledgments are also expressed to the editors of Penney's Forum for the use of materials developed for their publication by Gretchen Wilson. When adapted, these materials served as the basic structure for the Sex Role Attitude Survey, an instrument employed to measure sex bias in the attitudes of educators in the study.

Grateful appreciation is expressed to the vocational directors, counselors, instructors and students from the 20 school districts in Mississippi who provided the data for this study. The cooperation of personnel from the Division of Vocational-Technical Education of the Mississippi State Department of Education and from the Bureau of Educational Research and Evaluation, the parent organization of the investigators, are also acknowledged. Secretarial assistance provided by Martha Carroll, Brenda Shinn, Deborrah Smith and Mary Green made valuable contributions to the project in every phase of its execution.

Of course the investigators assume personal responsibility for the content of the report, and, at this stage, can only promise they would have done some things differently, if the study were repeated.

Herbert M. Handley

Ronald D. Walker

TABLE OF CONTENTS

	Page
PREFACE	i
LIST OF TABLES	vi
ABSTRACT	xii
I. THE RESEARCH PROBLEM	1
Introduction	1
Problem Statement	3
Theoretical Rationale	4
Internal Barriers to Career Options	4
Influence of Significant Others	6
II. RELATED LITERATURE	10
III. RESEARCH PROCEDURES	16
Subjects	16
Operational Definition	16
Sample Selection	16
Description of Subjects	17
Instruments	18
Vocational Student Background Survey	18
Characteristics of Workers Survey	21
Career Suitability Index	25
Sex Role Attitude Survey	26
Survey of Male-Female Enrollments (Directors' Survey)	33
Career Maturity Inventory/Attitude Scale	34
Collection of Data Procedures	35
Procedures for Data Analysis	35
IV. RESULTS OF STUDY	37
Attitudes of Vocational Educators	37
Attitudes of Secondary Vocational Students	38
Relating Attitudes of Vocational Educators and Students	39
Attitudes of Vocational Educators Toward Non-traditional Study and Work Roles	39
Relationship of Background Variables to Educators' Attitudes	40

Page

Educator's Sex Role Attitudes 44
Combination of Factors Predicting Educators' Attitudes 50
Background Factors, Career Influences and Attitudes of Vocational Students 56
Structure of Analysis 57
Characteristics and Career Influences of Male Students 58
Factors Related to Males' Decisions to Study in Specific Program 66
Perceived Attitudes of Others Toward Nontraditional Career Areas 72
Relationship of Career Plans to Current Studies . 76
Background Variables Discriminating Between Groups 78
Characteristics and Work Related Attitudes of Female Students 83
Background Factors 83
Factors Related to Decision to Study in Specific Programs 89
Perceived Attitudes of Others Toward Nontraditional Career Choices 102
Relationship of Career Plans to Studies 104
Background Variables Discriminating Between Groups 106
Career Maturity Attitudes 110
Attitudes Toward Appropriate Vocational Programs for Both Sexes 114
Attitudes Toward Nontraditional Work Roles 118
Predicting Attitudes of Students Toward Suitability of Areas for Study by Males and Females 124
Predicting Students' Attitudes Toward Nontraditional Work Roles 130
Summary of Interactions of Variables 136
Relative Influence of Variables on Students' Choice of Programs 138
Program Variables Related to Students' Attitudes . 146
Program Variables Related to Nontraditional Enrollments 150
Relationship of Teacher and Student Attitudes . . 152
Integration of Teacher and Student Variables Discriminating Between Traditional and Nontraditional Students 153
Independent Assessments of Discriminating Variable Sets 160

V. SUMMARY, IMPLICATIONS AND RECOMMENDATIONS 164

Page

Summary of Findings 165
Educator Attitudes 165
Student Attitudes 166
Relationship of Teacher and Student Attitudes . . 171
Overall Relationship of All Variables to Group Differences 171
Implications of Study 172
Career Development Theory 173
Program Development 177
Recommendations 179

REFERENCES 181

APPENDIX 185

LIST OF TABLES

Table		Page
1.	Student Sample Size Categorized According to Vocational Area of Study	19
2.	Description of Factors Derived from Characteristics of Workers Survey	23
3.	Factor I: Sex Stereotyped Attitudes Toward Work Role	28
4.	Factor II: Sex Stereotyped Attitudes Toward Personal Traits	29
5.	Factor III: Bias Toward Nonstereotyped Lifestyles	30
6.	Correlation of Personal Variables and Vocational Educators' Attitudes	41
7.	Comparison of Male and Female Vocational Educators' Attitudes Toward Nontraditional Studies and Work Roles	42
8.	Comparison of Vocational Educators' Attitudes Toward Nontraditional Studies and Work Roles When Educational Level is Considered	43
9.	Comparison of White and Black Vocational Educators' Attitudes	45
10.	Relationship of Stereotyped Attitudes of Sex Roles among Vocational Educators to Perceptions of Suitability of Vocational Programs for Males and Females	47
11.	Relationship of Stereotyped Attitudes of Sex Roles among Vocational Educators to Attitudes Toward Nontraditional Workers	48
12.	Relationship of Background Variables and Sex Role Bias in Attitudes of Vocational Educators to Views of Suitable Career Areas for Male and Female Students	51
13.	Relationship of Background Variables and Sex Role Bias in Attitudes of Vocational Educators to Their Attitudes toward Nontraditional Work Roles	53

Table		Page
14.	Amount of Time Worked for Pay by Males in Nontraditional and Traditional Programs	60
15.	Work Experience for Males in Traditional and Nontraditional Areas	61
16.	Parents' Occupations for Males Studying in Traditional and Nontraditional Vocational Programs	62
17.	Grades in High School for Males in Nontraditional and Traditional Programs	64
18.	Time When Decision to Enter Vocational Studies was Made by Males	65
19.	Reasons for Males Entering Traditional and Nontraditional Vocational Studies	67
20.	Perceived Parents' Reactions to Decision of Males to Enter Nontraditional and Traditional Programs of Study	68
21.	Perceived Friends' Reaction to Decision of Males to Enter Nontraditional and Traditional Studies	70
22.	Perceived Educators' Reactions to Decision of Males to Enter Nontraditional and Traditional Studies	71
23.	Influence of People on Males' Decision to Enter Nontraditional and Traditional Vocational Studies	73
24.	Factors Influencing Decision of Males to Enter Nontraditional and Traditional Areas of Vocational Study	74
25.	Perceptions of Males Studying in Nontraditional and Traditional Areas as to Attitudes of Influential Others Toward Females Studying to be An Automobile Mechanic	75
26.	Perceptions of Males Studying in Nontraditional and Traditional Areas as to Attitudes of Influential Others Toward Males Studying to be a Secretary	77
27.	Relationship of Present Vocational Study to Job Status Factors	79

Table		Page
28.	Plans after Graduation from High School for Males in Nontraditional and Traditional Vocational Programs	80
29.	Background and Influential Factors Discriminating Between Nontraditional and Traditional Males	82
30.	Amount of Time Worked for Pay by Females in Nontraditional and Traditional Programs	85
31.	Amount of Work Experience for Females in Traditional and Nontraditional Areas of Vocational Education	86
32.	Parents' Occupations for Females Studying in Traditional and Nontraditional Programs	88
33.	Grades Earned in High School by Females	90
34.	When Decision to Enter Vocational Study was Made by Females in Nontraditional and Traditional Programs	91
35.	Reasons for Females Entering Traditional and Nontraditional Studies	93
36.	Perceived Parents' Reactions to Decisions of Females to Enter Nontraditional and Traditional Areas of Vocational Study	95
37.	Perceived Teacher Reactions to Decisions of Females to Enter Nontraditional and Traditional Studies	96
38.	Perceived Friends' Reaction to Decision of Females to Enter Nontraditional and Traditional Areas	97
39.	Influence of People on Females' Decision to Enter Nontraditional and Traditional Studies	100
40.	Factors Influencing Decision of Females to Enter Nontraditional and Traditional Areas of Vocational Study	101
41.	Perceptions of Females Studying in Nontraditional and Traditional Areas as to Attitudes of Influential Others toward Females Studying to be an Automotive Mechanic	103

Table		Page
42.	Perceptions of Females Studying in Nontraditional and Traditional Areas as to Attitudes of Influential Others toward Male Studying to be a Secretary	105
43.	Relationship of Present Area of Study to Present and Future Job Status Factors Perceived by Females Studying in Nontraditional and Traditional Areas	106
44.	Plans after Graduating from High School for Females in Nontraditional and Traditional Vocational Programs	107
45.	Background and Influential Factors Discriminating Between Nontraditional and Traditional Females	109
46.	Factorial Analysis of Variance Model Comparing Career Maturity Attitudes for Traditional and Nontraditional Vocational Studies	112
47.	Comparison of Adjusted Means for Career Maturity Attitudes of Vocational Students	113
48.	Factorial Models Comparing Attitudes of Traditional and Nontraditional Vocational Students Toward Suitability of Vocational Programs for Study by Both Males and Females	115
49.	Adjusted Means for Traditional and Nontraditional Students on Career Suitability Attitudinal Scales	116
50.	Factorial Analysis of Variance Models Showing Differences in Students' Attitudes Toward Nontraditional Work Roles	119
51.	Adjusted Means for Traditional and Nontraditional Students' Attitudes Toward Nontraditional Work Roles	120
52.	Adjusted Means for Male and Female Vocational Students on Attitudes Toward Nontraditional Work Roles	122
53.	Adjusted Means for Black and White Students' Attitudes toward Nontraditional Work Roles	123
54.	Adjusted Means for Attitudes toward Nontraditional Work Roles Held by Traditional Males, Nontraditional Males, Traditional Females and Nontraditional Females	125

Table		Page
55.	Variables Predicting Bias in Vocational Students' Attitudes toward Males Studying in all Vocational Programs	127
56.	Variables Predicting Bias in Vocational Students' Attitudes Toward Females Studying in All Vocational Areas	129
57.	Variables Predicting Traditional Female Students' Attitudes Toward Nontraditional Work Roles	131
58.	Predicting Nontraditional Female Students' Attitudes Toward Nontraditional Work Roles	133
59.	Predicting Traditional Male Students' Attitudes Toward Nontraditional Work Roles	135
60.	Variables Predicting Nontraditional Male Students' Attitudes Toward Nontraditional Work Roles	137
61.	Attitudinal and Background Variables Discriminating Between Traditional and Nontraditional Males	140
62.	Means for Traditional Males and Nontraditional Males for Discriminating Variable Set	141
63.	Results from Classification of Traditional and Nontraditional Males into Groups on Basis of Attitudes and Career Influences	143
64.	Attitudinal and Background Variables Discriminating Between Traditional and Nontraditional Females	144
65.	Means for Traditional and Nontraditional Females for Discriminating Variables	145
66.	Results from Classification of Traditional and Nontraditional Females into Groups on Basis of Attitudes and Career Influences	147
67.	Relationship of Program Efforts to Eliminate Sex Bias to Students' Attitudes Regarding Suitability of all Vocational Areas for Study by Both Sexes	149
68.	Relationship of Program Efforts to Eliminate Sex Bias to Student Enrollments in Nontraditional Programs	151
69.	Relationship of Vocational Teacher and Student Attitudes Toward Nontraditional Workers	154

Table Page

70. Overall Career Influencing Variables Discriminating Between Traditional and Nontraditional Vocational Female Students 155

71. Overall Variables Discriminating Between Traditional and Nontraditional Male Vocational Students 158

72. Relative Influence of Attitudes of Significant Others, Teachers' and Students' Attitudes and Socioeconomic Factors in Discriminating Between Traditional and Nontraditional Males 161

73. Relative Influence of Attitudes of Significant Others, Teachers' and Students' Attitudes, and Socioeconomic Factors in Discriminating Between Traditional and Nontraditional Students 162

ABSTRACT

The objective of this research was to assess the relationship of attitudes held by vocational educators, influence of significant others, socioeconomic factors and the attitudes of students, themselves, to male and female students' enrollment in either traditional or nontraditional programs of study in vocational education.

The sample included 641 secondary level vocational students studying in classes traditionally considered "hard core" male or female programs of vocational education and 84 of their educators. Nontraditional subjects included 44 males and 227 females.

Six instruments were employed for data collection. Five of these were constructed and validated in pilot studies. They measured career influences and attitudes of teachers and students toward nontraditional studies and work roles for males and females. Multivariate and univariate statistical models were used for data analysis.

Results of the study indicated that teacher attitudes, student attitudes (themselves), perceptions of significant others and socioeconomic factors, in that order of significance, were useful variables for discriminating between traditional and nontraditional students of both sexes. Ninety-four percent of the female subjects and ninety-eight percent of the male subjects were correctly classified as "traditional" or "nontraditional" by a discriminant function loading with these variables.

I. THE RESEARCH PROBLEM

Introduction

Sex role bias in the attitudes of parents, teachers, counselors and administrators and also in the attitudes of students, themselves, has been postulated as a factor limiting entry of high school students into programs of vocational education considered nontraditional for their sex. Previously, researchers have not studied this relationship adequately since not enough females were enrolled in "hard core" male programs to provide a meaningful sample.

That vocational sex role stereotypes do exist in the attitudes of educators has been demonstrated in studies by Woerner (1976), Hantjis (1976), and Walker (1976). These studies, however, did not assess the relationship of teacher attitudes to student attitudes. nor did these investigators study potential sex bias in attitudes of vocational educators toward appropriate career choices for men. Also, very little has been done to determine background and educational variables associated with sex bias in attitudes of educators.

Under the aegis of legislative directives, such as Title IX of the Education Amendments of 1972 and the Education Amendments of 1976, activities to remove sex bias from vocational programs in the high schools of Mississippi have been accelerated. Considerable effort has been made by educators to develop awareness in high school students of opportunities for study in vocational programs historically

considered inappropriate for one sex or the other. Subsequential increases in enrollment for both males and females in nontraditional vocational programs provided an adequate sample of these individuals to study relationships of the attitudes of significant others (educators, parents, peers) and other career development influences to students' decision to elect their nontraditional studies.

Since the majority of high school vocational programs in Mississippi serve a rural constituency, social and economic pressures influencing students to conform to traditional patterns of career study may be more acute than those existing for students in more industrial regions. This premise appears to be illustrated by the lower enrollments of male and female high school students in nontraditional vocational programs in that state. Though the number of females enrolled in traditional male programs of study more than doubled in one year (Lewis, 1976, 1977), currently throughout Mississippi only seven percent of the students enrolled in areas of vocational and technical education are girls. In a like manner, the three vocational areas of health education, occupational home economics and business and office education, fields traditionally entered by more women, have average enrollments of fewer than five percent males. These enrollment percentages for 1977 in Mississippi are lower than national enrollments in these nontraditional areas over four years ago as reported by Steele (1974).

These data, in addition to the informal reports given by vocational educators pointed to the need for a careful study of factors contributing to students' resistance to enroll in nontraditional courses. In addition, models for career development, such as those

by Super (1957) and Ginzberg (1951), did not appear altogether appropriate for explaining the career development patterns of rural youth who diverged from the norm in the selection of vocational areas for study in high school.

Problem Statement

The problem investigated was an assessment of the relationship of attitudes held by vocational educators, perceived attitudes of significant others and other socioeconomic factors to students' attitudes toward men and women participating in nontraditional work roles and on their decision to enroll in traditional or nontraditional programs of study at the secondary level.

More specifically, the objectives of the research were as follows:

1. To determine the relationship of the variables of sex, race, role in vocational education, age, educational preparation and sex role attitudes to sex bias in attitudes of vocational educators concerning the appropriateness of traditionally stereotyped areas of study and of nontraditional career choices for males and females.

2. To assess the relationship of sex bias in attitudes of vocational educators toward attitudes of career suitability held by secondary level students, when the variables of students' personal sex bias attitudes, career maturity, perceived influence of significant others and existing socioeconomic factors are considered as interacting variables.

3. To determine the relationship of students' personal attitudes, sex bias in attitudes of educators, perceived attitudes of significant

others, socioeconomic variables and variables of age, sex and race to students' decision to enroll in traditional or nontraditional programs of vocational study.

Theoretical Rationale

Though this investigation resulted in the exploration of a long series of relationships of sex bias in attitudes of students, educators and other factors contributing to career development procedures, three theoretical hypotheses served as focal points for its structure. They were: (1) Students at the high school level elect to study in nontraditional areas of vocational education because they are able to cope with their own internal pressures resulting from socialization processes; (2) Supportive attitudes of significant others (educators, parents, peers) are influential factors in assisting both male and female students to decide to study in nontraditional programs; (3) Sex stereotypes expressed in attitudes of educators toward suitable careers for men and women are related to sex bias in their attitudes toward lifestyles, personal traits, and work roles for individuals.

Internal Barriers to Career Options

Ellis (1977) in her comprehensive study of issues related to expanding nontraditional opportunities in vocational education for women offered support for the first hypothesis. She concluded that many of the barriers to career options for women were found within the attitudes of the women, themselves. Ellis supported DiSabatino (1976) in her position that, even if external barriers to career development

are removed, women may continue to limit their options in selection of career areas. Among the internal barriers handicapping women's career development as compared to men, Ellis cited more fear of failure among women, more discrepancies between vocational aspirations for women, lower self esteem for women, more conflicts in concept of sex role and fears of success resulting from competition with men.

As examples of the influence of internalization of socialization processes upon the scholastic achievement of females, Ellis pointed out, in early elementary grades, male and female students exhibit fairly equal performance in most of the male-dominated scholastic areas, such as mathematics and science. By the secondary years, however, when they become more conscious of social roles, females fall below males in achievement in academic areas which provide foundations for success in many technical education programs.

In general, then, barriers which women build within themselves appear to relate to the way in which women are socialized in society. Cognition of expected sex roles becomes crystallized during the adolescent years when girls are deciding upon their course of study in vocational education programs. Though this relationship appears self-evident, as inferred by Ellis (1977), a coherent and consistent body of research to support it does not exist.

Also, within the literature of vocational education, little attention has been given to career development patterns for males studying in areas traditionally dominated by women. It appears reasonable that males would also experience internal conflicts relative to the traditional sex role projected for them by society as they consider studying in vocational programs previously dominated by women.

Influence of Significant Others

The influence of significant others has been identified by Ginzberg and associates (1951) to be of paramount importance as adolescents grow from more subjective to more realistic modes of decision-making in their career development processes. Significant others projected as influential in career development by theorists such as Ginzberg (1951) and Super (1957) are parents, teachers and other influential adult role models. More contemporary literature, however, suggests that peers may also be the significant others when females consider the alternatives for electing to study in either traditional or nontraditional courses (Trigg and Perlman, 1976). The peer group, rather than parents and teachers, provides the dominant attitudinal reference group for adolescents; hence, they may well be the "significant others" in which high school students see their expected sex role reflected most intensely. Significant others, according to Sullivan (1947) may be a social norm group, as well as specific individuals.

The second theoretical hypothesis of this study, then, is related to a social theory of self in which individuals structure attitudes and make decisions on the basis of the "self" which they see reflected in the "looking glass" of associates. This construct has been historically developed through the work of such psychologists as Cooley (1902), Mead (1934), and Sullivan (1947), and more recently, Rogers (1951), Goffman (1959), and Webster and Sobieszek (1974). Webster and Sobieszek view self concept as being determined by environmental influences; and, in turn, self concept is a major determinant

of individuals' action within and upon their environment. Significant others, in this context, are those whose opinions "matter" to the individual. They are those whose esteem is valued and whose disapproval is avoided if possible. In the structure of this study, then, attitudes of peers as perceived by the subjects, as well as those for parents, educators and other possible role models, were considered as factors potentially influencing the decision of high school students to study in nontraditional areas.

To clarify the structure of this study, a paradigm illustrated in Figure I was developed. It was proposed that, given free opportunity, high school students will choose to study in a traditional or nontraditional vocational program on the basis of their own attitudes and biases. These attitudes and biases, however, are influenced by the attitudes of parents, educators, and peers operating in the current social-economic milieu perceived by the adolescents. The relative influence of these enumerated variables upon the students' attitudes to enter nontraditional vocational education programs was not projected in the paradigm because of lack of information relative to these factors in the literature. It was expected, however, that the comparative influence of these variables would be derived from results of the study.

The paradigm did project that certain educational and background factors may serve as more primary antecedents of sex role bias in attitudes of vocational educators and, thus, indirectly relate to the attitudes which students hold toward electing vocational studies in nontraditional areas.

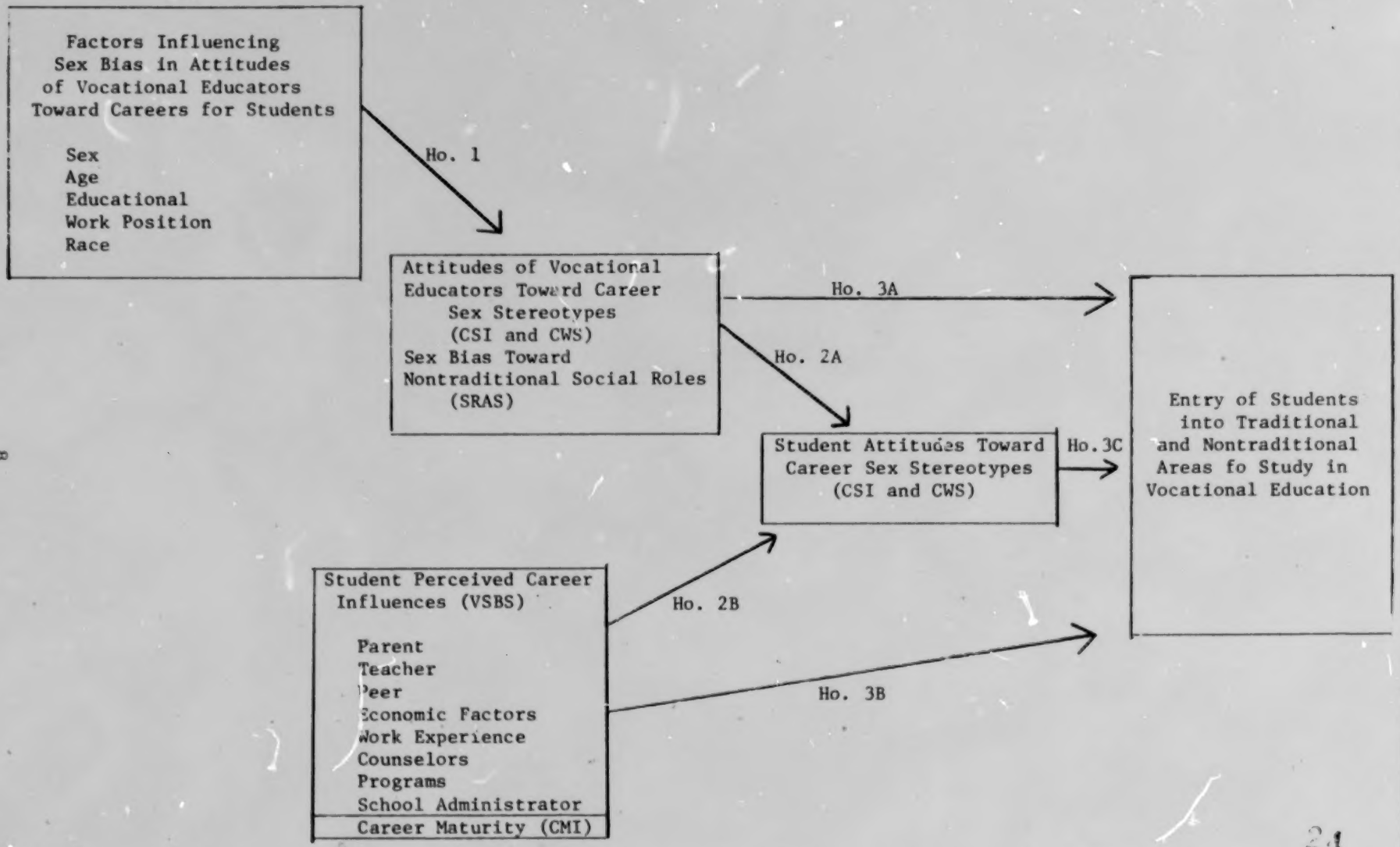

Figure 1: Paradigm for assessing Influencing Factors Relating to Entry of Students in Areas Nontraditional for their Sex.

Unfortunately, factors associated with sex bias in educators' attitudes toward appropriate careers for men and women have also not been definitively identified in the literature. The variables of sex, educational experience and ethnic origin (race) appear to be likely factors for consideration, since they have been identified with authoritarianism in the attitudes of teachers by Remmers (1954). Authoritarianism, as characterized by McGee (1955) is a personal trait associated with conservatism and with the development of stereotypes in attitudes of educators. In this study, it was also hypothesized that sex role stereotypes in vocational educators' attitudes toward work and family responsibilities, social lifestyles and personal characteristics of men and women as distinct groups would also be related to their perceptions of men and women working in nontraditional jobs and to their opinions of the suitability of selected career areas for study by both males and females.

II. RELATED LITERATURE

That sex sterotypes do exist in the attitudes of high school students toward the suitability of careers for men and women is demonstrated not only in the lower enrollment of males and females in areas traditionally considered not appropriate for one sex or the other, but also in research findings. Siegel (1973) reported that interests in occupations are conditioned by adherence to traditional definitions of sex-role patterns, with women selecting both a smaller range and different types of occupations. Siegel found that interest in possible future occupations was sex-typed by the time students were in second grade. Prediger, Roth, and Noeth (1974) discovered that over 50% of the eleventh grade girls in their sample selected vocational choices that fell into three job areas: (1) education and social services, (2) nursing and human care and (3) clerical-secretarial. Only 7% of the boys were interested in careers in these job families.

Factors motivating students to enter nontraditional areas of vocational study have been considered in two previous comprehensive studies reported in the literature. The first, conducted by Lewis and Kaltreider (1976), was planned to identify steps that can be taken to encourage young women to enter vocational areas that have been traditionally limited to males. It focused on nontraditional enrollments of females at the secondary levels, but its subjects were enrolled in "gray" areas such as vocational agriculture, printing, industrial chemistry or television arts, rather than "hard core" male programs,

such as construction, metal working or auto mechanics. In the second study, Kane and associates (1976) investigated factors influencing the participation of women in nontraditional occupations at the post-secondary level.

Both of these studies found that students selected nontraditional vocational programs on their own. Over half the high school students indicated they themselves were most influential in their choice of nontraditional programs. Counselors in both studies reported that students initiated their own choice of program.

Both studies found that parents were perceived as having the most important "outside" influence on students' plans to enter nontraditional courses. At the postsecondary level, career influences, expressed in the order of their importance to decisions regarding career studies were mothers, husbands and fathers. At the secondary level, it was found that other students were often more influential than either counselors or teachers.

The influence of male teachers, particularly vocational education teachers, on female students' decision to enter nontraditional studies at the postsecondary level was documented by Kane and her associates (1976). Conversely, women teachers were more influential in the female students' decisions to study in traditional fields.

Other investigators have documented the influence of significant others in combating existing sex stereotypes in occupational choice. Jolley (1975) suggested that sex bias exists in the attitudes of teachers, counselors, administrators and in the attitudes of students, themselves, toward women's choice of appropriate careers. She contended that these biases related negatively to students' entry in

nontraditional areas of study. In agreement with Kane and her group (1976), Fernandez (1977) found that women in nontraditional programs were more influenced by men than women in electing their particular course of study. Women in Fernandez's study appeared to be sustaining occupational stereotypes by supporting women who chose traditional career areas.

The role of parents as significant others in influencing high school students' interest in nontraditional careers has been documented by others in addition to the two comprehensive studies previously cited. The evidence, however, is conflicting. Burlin (1976) while studying the occupational aspirations of suburbian female eleventh graders concluded that the crucial factor associated with a daughter's aspiring to an occupation in which 50% or fewer of the workers are women is whether her mother is currently employed in this occupational category. Stockard (1974) noted that mothers' influences upon the career interests of female subjects considering nontraditional educational programs were more paramount.

Relative to peer influence, Lewis and Kaltreider (1976) concluded that traditional males appeared to their associates to be more serious about their vocational courses than were males taking nontraditional courses. Female classmates viewed both traditional and nontraditional females as being more serious in their career pursuits than did males in the same class. Data from the Lewis and Kaltreider study indicated that all but one of the nontraditional male subjects viewed their classmates as being either "very friendly" or "friendly" or "neutral" to their studies. A significantly higher proportion of

traditional females, however, thought their classmates were "very friendly" than did nontraditional females. Among male students, almost twice as many nontraditional males perceived their classmates as neutral toward them. Further data analysis indicated that female nontraditional students were more likely to feel "looked down on" by both students and teachers than were traditional females. Among the males, the same relationship was indicated, but the differences were not statistically significant.

In addition to perceiving the influence of parents as significant others, nontraditional females in a study by Trigg and Perlman (1976) also revealed that their male friends were more supportive of career choices in nontraditional areas than were boyfriends of women electing traditional courses of study. Attitudes of all boyfriends were supportive of traditional careers for women to a similar degree. Nontraditional females perceived men and women in general, as favoring women entering a traditional career. The traditional group, however, saw only men in general and their female friends as having different attitudes toward nontraditional careers for women.

In support of this observation, Shepard and Hess (1975) found that females at all age levels except kindergarten were more liberal than males toward appropriateness of occupations for both males and females.

Research studies, other than that of Kane (1977), have not documented the positive influence of teachers upon students' decision to elect to study in nontraditional areas of vocational education. To the contrary, Lewis and Kaltreider (1976), found that teachers did not regard the broad goals of equal access and equal opportunity in

vocational studies for all students, regardless of sex, as issues of concern. As reported by Lewis and Kaltreider, teachers in their study viewed the appearance of nontraditional students in their classes as something that "just happened." In this same study, when students were asked how much their teachers encouraged them in career plans, no significant differences emerged from the data between nontraditional females perceiving their teachers to be neutral rather than encouraging, as compared to traditional males.

Relative to counselors, Lewis and Kaltreider (1976) concluded that eliminating sexism in vocational education was not found to be a top priority item. These investigators saw counselors as not discouraging nontraditional enrollments, but encouraging them only if the student first indicated a nontraditional career interest. Even then, according to the investigators, the counselors did careful probing to be sure the students were really serious. In studying choice of nontraditional careers, then, the role of the counselor was viewed by Lewis and Kaltreider as overly cautious.

Despite how much is known about career development patterns for women in vocational education, much remains to be learned. Hoffman (1973) reported that teenage females overwhelmingly planned traditionally feminine careers and traditional work-marriage-child bearing life patterns, regardless of whether they accepted or rejected traditional stereotypes for masculine or feminine attributes, or whether they accepted the traditional stereotypes for women in their own self concept or not. Similarly, Mitchell (1977) found females seeking enrollment in high school programs believed that occupational opportunities are broadening for females; however, in practice, the

applicants still limited their own choices to those most stereotypic to their sex.

Such decisions by women to pursue stereotyped careers regardless of information and interests, appear to be based on personal preferences, economic factors, or internal pressures resulting from the general social milieu identified as important in the career development of women by Steele (1974), Kievit (1976), and Ellis (1977a, 1977b).

III. RESEARCH PROCEDURES

Subjects

Operational Definition

In Mississippi during the 1977-78 academic year, 95% of the females enrolled in secondary programs of vocational education were preparing for careers in stenographic secretarial practice, commercial sewing, food services, child care or nursing. For the purposes of this study, female students enrolled in these vocational areas were considered to be pursuing "traditional" careers. Conversely, males studying in these female-dominated career areas were classified as "nontraditional." Since enrollments of classes in agricultural production and mechanics and in selected areas of technical and industrial education, such as building trades, auto mechanics, metal trades and welding, were more than 95% male, male students studying in these areas were labeled as "traditional," while females electing these classes were classified as "nontraditional."

Sample Selection

Data were secured from the Mississippi State Division of Vocational and Technical Education which classified student enrollments in secondary level vocational programs according to sex. From these data, the number of students enrolled in programs classified as "nontraditional" was determined for each of the 60 separate vocational

centers offering training at the secondary level. Then, these centers were ranked according to their total enrollment of nontraditional students. From this ranking it was discovered that 20 of the vocational centers trained nearly two-thirds of the total number of nontraditional students in Mississippi. Each of these centers enrolled more than 10 students in nontraditional areas. Directors for these 20 vocational centers were contacted to secure permission to conduct the study on their sites. All except one of the school districts agreed to cooperate. School officials at a center having nine students enrolled in nontraditional classes were then contacted and agreed to participate in the study as a substitute.

Subjects for the study, then, came from 20 of the 60 secondary level vocational centers located geographically throughout Mississippi. They served both urban and rural populations. The sample included 84 vocational educators and 641 secondary level vocational students.

Description of Subjects

The nontraditional student sample included all such students attending class on the day of data collection. The traditional student subgroup was comprised of representative males and females participating in traditional classes which met at the same time as did those in which the nontraditional students were enrolled. These traditional students were selected to participate by either the counselor or program director of their center. Included in the sample were 406 female (227 nontraditional and 179 traditional) students and 235 male (44 nontraditional and 191 traditional) students. The vocational students ranged in age from 14 through 20 years with nearly 90% of the

sample being 16-18 years old. Distribution of student subjects according to race was as follows: 213 black, nontraditional students; 179 black, traditional students; 58 white, nontraditional students and 191 white, traditional students. All nonwhite subjects were predominantly native American blacks. The number of students in selected vocational programs are given in Table 1.

The vocational educator group included 20 program directors, 8 counselors, and 56 instructors. Thirty-five of the instructors (17 male and 16 female) had not taught nontraditional students in their classes and 21 teachers (16 male and 5 female) currently had nontraditional students enrolled in their courses. The teacher groups were also classified as "traditional" or "nontraditional" according to whether they had worked with traditional or nontraditional students in vocational classes.

Instruments

Six instruments were employed for data collection. They included the Vocational Student Background Survey, the Characteristics of Workers Survey, the Career Suitability Index, the Sex Role Attitude Survey, the Survey of Enrollments and the attitudinal scale of the Career Maturity Inventory.

Vocational Student Background Survey

The Vocational Student Background Survey (VSBS) was a questionnaire developed to secure data from vocational students relative to their backgrounds and their perceptions of career motivation factors. Ten of the 20 items of the VSBS were designed to secure

Table 1

Student Sample Size Categorized According to Vocational Area of Study

Vocational Area	Nontraditional Males N	Traditional Males N	Nontraditional Females N	Traditional Females N
Intensive Business Training	9			86
Auto Mechanics		40	20	
Radio & TV Repair			7	
Electrical Trades		25	6	
Building Trades		64	41	
Agriculture Production		14	50	
Horticulture			16	
Metal Trades		21	27	
Food Services	23			
Welding		5	4	
Cosmetology	1			2
Commercial Foods	6			1
Carpentry		1	8	
Agricultural Mechanics		8	3	
Millwork and Cabinetry			10	
Agricultural Business			29	
Body & Fender Repair		2	3	
Clothing Occupation	3			37
Masonry			3	
Home Economics				15
Power Mechanics		1		
Business Office Machines				6
Business & Office	2			7
Child Care				10
Vocational Trades		1		
Industrial Sewing				3
Business & Office Education				12
Drafting		9		
Totals	44	191	227	179

general demographic, socioeconomic and work experience data from students. Five items elicited data relative to the students' decisions to study in their particular program in vocational education, including the time the decision was made, their best reason for deciding on the elected area of study, perceived reactions of parents, friends and educators to their career choices and the relative influence of significant others on their choice of study program. Two items assessed students' perceptions of the influence of significant others on nontraditional study choices of males and females. Three items were designed to determine future career plans of subjects, relative to their current studies.

The content of this instrument was established through a careful examination of the literature and through consultation with Dr. Mary L. Ellis, President of Ellis Associates, Inc.* Four of the items relating to career influences were designed to secure scale scores by the use of Likert-type responses. The other items were multiple choice in structure and were scored as nominal variables. In preliminary studies where the instrument was field-tested with 40 students, coefficients of internal reliability were computed for each of the scales' relation to career influences. A coefficient alpha statistic (described by Veldman(1967) was employed for this purpose.

*Dr. Ellis is author of the publication Barriers to Expanding Nontraditional Opportunities for Vocational Education Students, Ellis Associates, College Park, MD, June 1977. She is also a former president of the American Vocational Education Association.

Coefficients of internal consistency ranging from .75 to .86 were determined for scales relating to people influences, socioeconomic influences, and attitudes of significant others toward men and women working in nontraditional work roles as perceived by the student subjects. An overall internal reliability of .92 was derived for the total set of career influencing factors studied in the four items of the instrument.

Characteristics of Workers Survey

The Characteristics of Workers Survey (CWS) was also developed by Walker and Handley (1978) to measure attitudes of educators and students toward men and women employed in occupations considered nontraditional for their sex. It was constructed as a semantic differential along lines suggested by Osgood, Suci and Tannenbaum (1957). Rather than relating to a word concept, however, subjects were asked to respond to a short description of a female or male worker employed in a nontraditional work role.

Items of the CWS consisted of six work situations in which male and female workers are central in three of the situations. Each situation was evaluated by the subjects' responding to 10 seven-point rating scales where each scale contains a bipolar adjective pair. Subjects made their responses by marking on the scale how they perceived the degree of relationship between the adjective pair continuum to the work situation. Adjective pair uses in this instrument were: good-bad, strong-weak, excitable-calm, wise-foolish, beautiful-ugly, masculine-feminine, positive-negative, active-passive, hard-soft and competent-inadequate. For purposes of data analysis, response

options were recoded so that those who scored high on the scales were perceived as less biased toward a nontraditional situation than those who scored low; i.e., hign scores indicated more positive attitudes. The maximum score on each scale was 7 while the minimum score was 1.

Prior to its use in this investigation, the CWS was administered to 208 subjects (educators and students) in a pilot study. A principal component factor analysis with varimax rotation, designed by Dixon (1975), yielded 14 factors explaining 71% of the total variance in the instrument. In later studies, employing data from subjects in the current study, only 10 factors emerged when responses to the CWS were subjected to the same factor analysis. These factors were nearly identical in structure with the first 10 of the pilot study and they related to 56% of the total variance. It was decided to employ the results of the second principal component analysis for use in the final study since these data were the more conservative estimates of factor components. A summary of the 10 derived factors is presented in Table 2.

Items with high loadings (.40 or higher) on Factor I were eight adjective pairs from the work situation which described a male working as an office receptionist. Factor II consisted of seven adjective pairs from the work situation describing a male nurse. Factor III contained seven adjective pairs from a situation describing a female airline pilot. Factor IV was made up of seven adjective pairs describing a female automobile mechanic. Factor V contained seven adjective pairs which described a male day-care aide. Factor VI consisted of seven adjective pairs describing a female welder. No

Table 2

Description of Factors Derived from Characteristics of Workers Survey

Factor Descriptions[a]	Cumulative Proportion of Total Variance	Variance Explained (Eigen-value)
NTM work Role (Receptionists)	.221	12.246
NTM Work Role (Nurse)	.285	3.875
NTF Work Role (Airline Pilot)	.390	3.278
NTF Work Role (Automotive Mechanic)	.382	2.549
NTM Work Role (Day-Care Aide)	.421	2.288
NTF Work Role (Welder)	.453	1.968
NTF/Femininity Scale	.484	1.843
NTM-MTF/Self-Control Scale	.512	1.659
NTM/Masculinity Scale	.536	1.472
NTM-NTF/Competency Scale	.558	1.316

[a]NTM = Nontraditional Male
NTF = Nontraditional Female

attempt was made to name these six factors as they represented attitudes toward the work situations as perceived independently according to the type work involved rather than as an overall perception of occupational sex roles. Since, however, the same adjectives consistently appeared in these six factors they could be labeled as "CWS-Work Role Scales." All adjectives loading on these factors related to the evaluative and potency dimensions of attitudes as described by Osgood, Suci, and Tannenbaum (1975).

Factor VII contained adjectives (hard-soft, masculine-feminine) from each of the work situations where females were the central figures. This factor appeared to indicate that women are perceived as soft and feminine when working in non-traditional career areas. This factor has been labeled the "NTF/Femininity Scale." Factor VIII contained only one adjective pair (calm-excitable), but it was pulled from all six work situations. These data appeared to indicate a dimension of attitudes where men and women were perceived as calm in nontraditional work roles. This factor has been labeled the "NTM-NTF/Self-Control Scale." Factor IX was made up of one adjective (masculine-feminine) from the three situations where men were employed in nontraditional work roles. This factor seems to imply in this attitudinal dimension that men were perceived as masculine when working in traditionally female areas. Factor IX has been labeled the "NTM/Masculinity Scale." Factor X contained one adjective pair (competent-inadequate), drawn from all six work situations. These data seem to indicate that men and women were perceived in one dimension of the measured behavior as competent when working in occupations considered nontraditional for their sex. This factor has been labeled the "NTM-NTF/Competency Scale."

Career Suitability Index

The Career Suitability Index (CWI) was designed by the investigators to assess sex stereotypes in the attitudes of educators and students toward the appropriateness of selected areas for vocational study by either males or females at the secondary level. This instrument listed 22 career areas in which vocational training is offered in Mississippi at the high school level. Career areas chosen for this list were those most popularly elected by students on a statewide basis. These areas also traditionally were dominated in enrollment by members of one sex.

Prior to use in this study, this instrument was also field-tested with 46 students and educators at a secondary school vocational center. Subjects were requested to mark each of the 22 career areas as either "appropriate" or "inappropriate" for males and females, respectively. Career areas marked as "inappropriate" were considered as an indication of sex bias toward career suitability for both sexes. Then, the total number of "inappropriate" responses was computed for males and for females. The two scores derived in this computation were considered as: (1) bias in attitudes toward career suitability for males (CSIM) and (2) bias in attitudes toward career suitability for females (CSIF). Internal reliability for the two scales was established by computing alpha coefficients from procedures developed by Veldman (1967). Internal reliability coefficients of .96 and .96 were respectively determined for the CSIM scale and the CSIF scale.

Sex Role Attitude Survey

The Sex Role Attitude Survey (SRAS) was developed to assess the attitudes of adults toward the role of males and females in the emerging society. The instrument was adapted from an attitudes' survey developed by Wilson (1973) for the Educational Relations Department of J. C. Penney Company and was used with permission from the J. C. Penney Company. The 43 items of the SRAS elicit responses from subjects to measure their attitudes toward stereotypes of masculinity and femininity of appropriate lifestyles and toward attitudes of equality in the work role and family responsibilities for men and women.

The SRAS was administered to 208 educators in a pilot study in an attempt to isolate principal components of the instrument which relate to sex role bias. These educators were working in both vocational and nonvocational areas of the curriculum in East-Central Mississippi and North-West Alabama. Responses to the instrument were scored to show the degree of sex role bias reflected. A higher score on items indicated more bias in attitudes.

Once each item was scored, the derived measures for the 43 criteria were then submitted to an image factor analysis followed by orthoblique rotation featured in Kaiser's Second Generation Little Jiffy (Kaiser, 1970), and reported by Dixon (1975). Results of this analysis yielded three factors which explained 34% of the total variance in responses. While the factors generated described only about one-third of the variance in attitudes expressed on the SRAS, they were meaningful, relative to the logic of sex role stereotypes and for the purposes of the research design.

Tables 3-5, respectively, summarize the rotated factor loadings for the separate items of the Sex Role Attitudes Survey on the three derived factors. Thirteen items, loading .30 or above, were judged to contribute effectively to a description of the first factor which explained over 25% of the total variance on the instrument.

Stereotypes in Work Role. This first factor was characterized by strong loadings of the male and female stereotyped roles related to the world of work. Two items which loaded most on this factor in a negative direction were "Women should be encouraged to prepare themselves to work in jobs traditionally held by men" and "Men should be encouraged to prepare themselves to work in jobs traditionally held by women." Another item which loaded heavily on this factor was "My religious convictions are such that I believe the man (husband/father) should be the final authority in matters concerning the family." Also, persons who held these views agreed that they had not given much thought to sex role stereotyping. They thought that a bright woman should conceal her intelligence, otherwise she will hinder her chances of dating and marriage, and that a woman who argues logically and intelligently in everyday interactions is not very feminine. They felt that little children need their own mothers, full-time, and that a man who cries is not masculine. Furthermore, subjects who scored high on this factor felt that the special privileges men extend to women more than offset any discrimination they practice against them. Surprisingly, however, persons holding these stereotyped views felt that if both the wife and husband worked

Table 3

Factor I: Sex Stereotyped Attitudes Toward Work Role

Item No.	Description	Factor Loading
23	Women should not be encouraged to prepare themthemselves to work in jobs traditionally held for men.	.922
22	My religious convictions are such that I believe the man (husband/father) should be the final authority in matters concerning the family.	.902
25	Men should not be encouraged to prepare themselves to work in jobs traditionally held by women.	.887
26	I have not given much thought to sex role stereotyping.	.780
24	As a female, I would expect to earn the same salary as a man who does the same work.	.730
9	A bright woman should conceal her intelligence, otherwise she will hinder her chances of dating and marriage.	.630
38	When both wife and husband work full-time, they should split child-care 50-50.	.588
11	A man who cries is not very masculine.	.558
10	Little children need their own mothers, full-time.	.328
13	The special privileges that men extend to women more than offset any discrimination they practice against them.	.427
15	A woman who argues logically and intelligently in her everyday interactions is not very feminine.	.436
37	When both the wife and husband work full-time they should split the work 50-50.	.474
42	John and Mary have no children since both want to actively pursue their careers. Mary if offered an excellent promotion but it would require moving to another state. Mary should consult her husband before she takes the promotion.	.466

Factor Computation:

FAC I = 22 + 22 + 25 + 26 + 24 + 9 + 38 + 11 + 10 + 13 + 15 + 36 + 42

Table 4

Factor II: Sex Stereotyped Attitudes Toward Personal Traits

Item No.	Description	Factor Loading
33	Empathy and intuition are not equally common in both sexes.	.940
31	Nurturing capacity is not equally common in both sexes.	.883
32	Ability to reason abstractly is not equally common in both sexes.	.794
28	Capacity for deep feelings is not equally common in both sexes.	.703
29	Independence is not equally common in both sexes.	.690
30	Objectivity and rationality is not equally common in both sexes.	.676
1	One sex has more advantages than the other in society.	.481
27	Aggressiveness is not equally common in both sexes.	.481
12	The institution of marriage in its present form is more inhibiting than fulfilling.	.313
34	Mrs. R., a mother of 3 children (ages 2, 5, and 8), works full-time. What reason given below do you feel justifies her working full-time? Anything except that she finds her work fulfilling.	.514
35	Judy, a ninth grader, has been told by her mother to quit football in the neighborhood. From her perspective, which reason justifies the mother's directive? Any reason given.	.393
43	Doll-playing for an 8-year-old boy is effeminate.	.328

Factor Computation:
FAC II = 33 + 31 + 32 + 28 + 29 + 30 + 1 + 27 + 12 + 34 + 35

Table 5

Factor III: Bias Toward Non-Stereotyped Lifestyles

Item No	Description	Factor Loading
6	Salaries, promotions and hiring should be equal for men and women.	.529
2	The best way for most women to develop their potential is by not being good wives and mothers only.	.405
4	The communications media degrades women by portraying them as sex objects and/or mindless dolls.	.401
5	Children's books should not promote the traditional roles for men and women.	.481
16	Many women who do the same work as their male colleagues earn substantially less money.	.367
18	The housewife-mother role does not really provide women with enough opportunity for self-fulfillment.	.464
19	A young man who enjoys cooking, sewing and taking care of young children should discuss these interests very cautiously, since he is likely to be considered effeminate.	.305
20	Preferential treatment for women in hiring and promotion is not appropriate to make up for past discrimination.	.432
39	Women in first class rank in medical school should strive to maintain that rank.	.437
40	Mr. X is biased against women because he chooses Mr. G over Miss M., even though they appear to have equal qualifications.	.357
41	Mr. T. and Mrs. T. both work half-time and care for the children half-time. What about Mr. T.? It takes away from his masculinity/he could never be respected.	.481

Factor Computation

FAC III = 6 + 2 + 4 + 5 + 16 + 18 + 19 + 20 + 29 + 40 + 41

full-time, they should split the work at home on a 50-50 basis and that females should expect to earn the same salary as men for the same work. This first factor, therefore, was labeled "Stereotyped Work Roles."

Stereotyped Personal Traits . Factor II measured six stereotypes related to the personal traits of men and women. The 22 items of the SRAS which loaded on this factor explained 6.6% of the variance in responses measured on the instrument. Persons who score high on this factor believe that there is equal commonality in both sexes for feelings of empathy and intuition, nurturing capacity, ability to reason abstractly, capacity for deep feelings, independence, objectivity, rationality and aggressiveness. Persons who hold these attitudes, as related to Factor II, also believe that one sex has more advantages than the other in society. They believe that the institution of marriage in its present form is more inhibiting than fulfilling. Further, they believe that football, for any reason, is not a game for girls; nor should eight-year-old boys play with dolls. They feel that women should work outside the home only if their income is needed for family support. In further studies of items loading on this factor, it was found that men scored higher on this factor than did women. Therefore, it is hypothesized that this component measures stereotyped attitudes of masculinity-femininity.

Stereotype in Lifestyles. Factor III of the SRAS explained 7.1% of the variance in attitudes toward sex roles not already depicted by the first two factors. The 11 items composing this scale elicited attitudinal responses associated with lifestyles for both

men and women. This factor appeared also to have a strong work role orientation, but, in addition, it was characterized by items related to the social and general achievement role of the sexes. The items which loaded most heavily on the factor described attitudes saying that (1) salaries, promotions and hiring should be equal (unequal) for men and women, (2) the best way (not the best way) for most women to develop their potential is to seek avenues of expression, other than being good wives and mothers only, (3) the communications media degrade (do not degrade) women by portraying them as sex objects or mindless dolls, (4) children's books should (should not) promote the traditional roles for men and women, (5) many women who do the same work as their male colleagues earn (do not earn) substantially less money, (6) the housewife-mother role does (does not) really provide women with enough opportunity for self-fulfillment, (7) young men who enjoy cooking, sewing and taking care of young children should (should not) discuss these interests very cautiously, since they are likely to be considered effeminate, (8) women in medical school who have earned first rank in class should (should not) maintain the rank, regardless of male peer pressure, (9) employers who select men employees rather than women because they believe (do not believe) that women employees are more unstable, more likely to move because of husband's job or that they simply should stay at home with the family is biased against women, and (10) a man could (could not) be respected who worked half-time, and whose wife worked half-time while both shared equally in the care of children and home duties. All of these variables characterizing Factor III appear to represent views on the liberated sex role for men and women.

In additional validity studies of the SRAS, the 43 items of this instrument were found to discriminate significantly between the attitudes of male and female educators at the .001 level (Handley and Walker, 1978).

Survey of Male-Female Enrollments (Director Survey)

Part I of the Survey of Male-Female Enrollments (Director Survey) was structured to secure data on the number of males and females electing specific courses of study in high school vocational education programs, as reported by program directors. Part II of the Director Survey included 16 items describing approaches that schools might use to help eliminate sex bias in their vocational programs. Directors were asked to rate the degree of emphasis which their programs had given each of the criteria. An opportunity was provided for the directors to add additional program developments, if applicable. Responses to these criteria were marked on a five-point Likert-type scale with "5" indicating that "strong emphasis" had been given to that phase of program development and with "1" indicating "no emphasis" on that specific criterion.

Typical items proposed for eliminating sex bias included use of role models, screening instructional materials for sex bias, holding inservice workshops for teachers to familiarize them with the issues of sex bias, employing counselors and teachers interested in nontraditional careers, advertising programs with free access to both sexes in both studies and later work opportunities and actively recruiting nontraditional students. Each of these items was scored separately and was considered as individual variables in determining relationships

between school programs and resulting student behaviors in the study.

Career Maturity Inventory/Attitude Scale

The Attitude Scale of the Career Maturity Inventory was employed to assess general vocational maturity of students in the study. This instrument, according to Crites (1973), was designed to measure attitudes that are critical in realistic career decision-making. That selecting an occupation is a process which spans a considerable number of years, usually from late childhood to early adult, was the rationale upon which Crites developed his instrument.

As theorized by Crites, the attitudes associated with vocational development are clustered into five separate dimensions: (1) involvement in the career choice process; (2) orientation toward work; (3) independence in decision-making; (4) preference for career choice factors and (5) conceptions of the career choice process. Crites designed the attitude scale with 50 true-false attitudinal statements which he believed were indicative of these item clusters.

Internal consistency estimates for grades 6 through 12 were calculated with the Kuder-Richardson Formula 20 and ranged from .65 to .84 with a mean of .74 (Crites, 1973). Since the instrument was planned to be composed of five related, but not identical clusters of traits, these measures of internal consistency for the total attitude score did not appear unreasonable.

Crites also reported a correlation of .71 for 1,648 students in stability studies when the subjects were tested and retested over a one-year interval. Crites (1973) predicted that this test-retest

Relationship was low enough to allow for maturational variance but not high enough to establish systematic measurement for the variable being quantified.

Collection of Data Procedures

After the instruments were constructed and pretested, they were administered to the 84 vocational educators and 641 secondary level students during the spring semester of 1978. Data were collected by the associate investigator in cooperation with school counselors in each of the 20 participating centers located throughout the state. Instruments were administered to students in small group sessions composed of 25 or fewer subjects. Directions for responding to all instruments were read aloud to the student subjects. Care was taken to insure that each individual understood how to perform the expected tasks. Students completed the Attitude Scale of the Career Maturity Inventory, the Characteristics of Workers Survey, the Career Suitability Index and the Vocational Student Background Survey.

The vocational directors, counselors and teachers participating in the study completed their responses to the Sex Role Attitude Survey, the Characteristics of Worker Survey and the Career Suitability Index during their free time on the day of the investigator's visit to their center. In addition, the program directors completed the Survey of Male-Female enrollments.

Procedures for Data Analysis

Both univariate and multivariate statistical models were employed for data analysis. Packaged statistical programs developed

by Veldman (1967), Dixon (1975) and Nie and associates (1975) were utilized in the study. Multivariate statistical models used were stepwise multiple regression, canonical correlation, discriminant analysis and factor analysis. Other statistics employed were t-tests, simple analysis of variance and factorial analysis of variance models. The Scheffe test was used for post hoc analysis in comparing means for multiple groups when significant differences were indicated in variance models.

IV. RESULTS OF STUDY

To fulfill the objectives of this study the data analysis was organized into three broad areas: (1) attitudes of vocational educators; (2) attitudes of students and (3) relating attitudes of vocational educators and program developments to attitudes of students. The following nine questions served as guidelines for structuring the study.

Attitudes of Vocational Educators

1. What correlation exists between the variables of sex, age, length of experience, educational training and attitudes of secondary level vocational educators relative to
   a. the suitability of nontraditional areas of vocational study by male and female students, as viewed by the educators?
   b. educators attitudes toward performance of men and women in nontraditional work roles?
2. What relationship exists between sex bias in educators' attitudes toward the social role for men and women and their attitudes toward
   a. the suitability of nontraditional areas of vocational study for male and female students?
   b. work performance of men and women in nontraditional jobs?

3. What combination of the variables of sex, race, educational level, length of experience and sex bias in attitudes toward appropriate social roles for men and women are the best predictors of vocational educators' attitudes toward
   a. the suitability of nontraditional areas of vocational study for male and female students?
   b. nontraditional work performances for men and women?

Attitudes of Secondary Vocational Students

4. How do traditional and nontraditional groups of male and female vocational students differ on
   a. attitudes associated with career maturity?
   b. perceived career development influences?
   c. attitudes toward males and females working in nontraditional jobs?
   d. attitudes toward appropriateness of vocational areas for study by male and female students?
5. What is the best set of career development influences and personal characteristics for predicting attitudes of students relative to
   a. suitability of vocational areas for study by male and female students?
   b. men and women working in nontraditional jobs?
6. What is the relative influence of significant others, personal attitudes and socioeconomic factors in predicting whether or not students will enroll in nontraditional programs of study?

Relating Attitudes of Vocational Educators and Students

7. What factors in program developments to eliminate sex bias as reported by vocational administrators are related to
   a. students' attitudes of the suitability of all career areas for study by members of both sexes?
   b. percentage of students enrolled in nontraditional courses?
8. When career influences and socioeconomic factors are considered as interacting variables, what relationship exists between students' attitudes and attitudes of teachers toward nontraditional study and work roles?
9. What is the best combination of student variables and teacher attitudinal variables for discriminating between traditional and nontraditional groups of students?

Attitudes of Vocational Educators Toward Nontraditional Study and Work Roles

The first phase of the study focused on determining the relationship of personal variables of vocational educators to their attitudes toward males and females preparing for and performing in nontraditional work roles. Criterion variables included: (1) educators' attitudes toward the appropriateness of vocational programs for study by both male and female vocational students, as measured by the Career Suitability Index subscales and (2) their attitudes toward performances of men and women in nontraditional work roles, as measured by responses to the subscales of the Characteristics of Workers Survey.

Relationship of Background Variables to Educators' Attitudes

The first research question concerned the relationship of the variables of sex, age, length of experience and level of education training of the vocational educator to the attitudinal criterion variables. These relationships were initially studied through the use of simple correlations. Results of these analyses are summarized in Table 6.

Bias in Career Suitability for Males and Females. The variables of sex and educational level were found to correlate significantly with measures of sex bias toward the suitability of vocational areas of study for both male and female students. Means for the educators' attitudes when grouped according to these variables were compared through the use of t-tests and analysis of variance. The Scheffe test was employed as a post hoc measure to compare the means in analysis of variance models predicting significant differences among groups in the studies of variance associated with educational level. The results of these analyses are given in Tables 7 and 8.

As noted in Table 7, women vocational educators indicated more sex bias (the higher mean indicates more bias in attitudes) toward the suitability of career areas listed on the CSI for study by female students at the high school level, than did the men educators. No differences were noted in the attitudes of men and women educators toward suitability of these career study programs for male students, however.

Relative to the educational level of educators, vocational teachers holding only bachelor's degrees were more biased than were those educators with master's degrees in viewing the career study

Table 6

Correlation of Personal Variables with Vocational Educators' Attitudes

Criteria	Sex	Race	Age	Educational Levels	Experience
Career Suitability (NTM)	.16	.03	.17	-.21*	.00
Career Suitability (NTF)	-.25**	.01	.14	.04	.05
NTM Work Role (Receptionist)	.07	-.24*	.06	-.11	-.05
NTM Work Role (Nurse)	.06	-.08	-.01	.22*	-.05
NTF Work Role (Airline Pilot)	-.26**	-.19	-.12	.14	-.11
NTF Work Role (Auto Mechanic)	.01	-.35**	.04	.14	.00
NTM Work Role (Day Care Aid)	-.17	-.17	-.07	.14	.00
NTF Work Role (Welder)	.00	-.27**	.08	-.04	.05
NTF Femininity Scale	.08	.00	.06	-.24*	.01
NTM/NTF Self-Control Scale	-.09	.12	.04	-.15	-.07
NTM Masculinity Scale	.04	-.25*	.10	-.06	.05
NTM/NTF Competency Scale	-.17	-.09	-.13	.07	-.11

* Significant at .05 level
** Significant at .01 level

Table 7

Comparison of Male and Female Vocational Educators' Attitudes toward Nontraditional Studies and Work Roles

Criteria	Male (N=59) $\bar{X}$	S.D.	Female (N=25) $\bar{X}$	S.D.	t
Career Suitability (NTM)	2.50	2.75	1.60	2.16	1.46
Career Suitability (NTF)	2.74	2.96	4.60	4.15	2.32*
NTM Work Role (Receptionist)	4.57	1.13	4.41	1.01	.62
NTM Work Role (Nurse)	4.65	1.24	4.49	1.03	.56
NTF Work Role (Airline Pilot)	4.60	1.24	5.31	1.07	2.48*
NTF Work Role (Auto Mechanic)	4.84	1.20	4.82	1.12	.07
NTM Work Role (Day Care Aide)	4.39	1.35	6.91	1.26	1.62
NTF Work Role (Welder)	4.79	1.19	4.79	.99	.00
NTF Femininity Scale	3.70	.88	3.57	.72	.73
NTM/NTF Self-Control Scale	3.73	1.08	3.94	1.30	.81
NTM Masculinity Scale	4.21	1.25	4.32	1.32	.35
NTM/NTF Competency Scale	4.92	1.21	5.37	1.22	1.55

* Significant at .05 level.

Table 8

Comparison of Vocational Educators' Attitudes toward Nontraditional Studies and Work Roles When Educational Level is Considered

Criteria	Degrees Earned			F
	Bachelor's $\bar{X}$	Master's $\bar{X}$	Specialist $\bar{X}$	
Sex Bias/Career Suitability Males[a]	3.05	1.39	2.20	4.01*
Sex Bias/Career Suitability Females	3.71	2.69	3.90	.98
NTM Work Role (Receptionist)	4.46	4.77	3.87	2.89
NTM Work Role (Nurse)[b]	4.23	4.99	6.59	4.30*
NTF Work Role (Airline Pilot)	4.67	4.98	4.82	.57
NTF Work Role (Auto Mechanic)	4.73	4.97	4.70	.44
NTM Work Role (Day Care Aide)	4.34	4.82	4.32	1.37
NTF Work Role (Welder)	4.79	4.92	4.33	1.10
NTF Femininity Scale	3.71	3.75	3.13	2.84
NTM/NTF Self-Control Scale	3.95	3.69	3.57	.68
NTM Masculinity Scale	4.30	4.37	3.97	.38
NTM/NTF Competency Scale	4.85	5.36	4.77	1.99

* Significant at .05 level
** Significant at .01 level

[a] Bachelor's>Master's

[b] Specialist's>Master's = Bachelors

areas as suitable for study by males. No differences were noted in attitudes of educators toward the career suitability of the different programs for female students when the educators were grouped according to educational level.

Educator Attitudes toward Nontraditional Work Role Performances. Significant relationships between the background variables of sex, race and educational level and the educators' attitudes toward men and women performing in nontraditional work roles were also discovered, as indicated in Table 6. When subjects were grouped according to these background variables, these relationships were confirmed through results of the t-test and F-test analyses. These data are given in Tables 7, 8, and 9.

Male educators were more biased toward women working as airline pilots than were the women educators, as noted by subjects' responses to that subscale of the Characteristics of Worker Survey. White educators were more biased than were Black educators toward men working as receptionists and women working in the nontraditional roles of auto mechanics and welding. Persons holding specialist's degrees were also less biased toward men working as nurses than were vocational educators having earned only a bachelor's or master's degree.

Educator's Sex Role Attitudes

What relationship exists between bias in educators' attitudes toward appropriate sex roles and their attitudes toward suitability of vocational programs for study by males and females and their attitudes toward nontraditional work roles?

Table 9

Comparison of White and Black Vocational Educators' Attitudes

Criteria	White (N=60) $\bar{X}$	S.D.	Black (N=24) $\bar{X}$	S.D.	t
Sex Bias/Career Suitability - Males	2.28	2.61	2.42	2.47	.25
Sex Bias/Career Suitability - Females	3.32	5.47	3.25	3.44	.08
NTM Work Roles (Receptionist)	4.35	1.02	4.93	1.19	2.22*
NTM Work Roles (Nurse)	4.54	1.26	6.76	1.26	.76
NTF Work Roles (Airline Pilot)	4.67	1.25	5.19	1.11	1.78
NTF Work Roles (Auto Mechanic)	4.57	1.15	5.48	.98	3.41*
NTM Work Role (Day Care Aide)	4.41	1.31	4.90	1.38	1.52
NTF Work Role (Welder)	4.60	1.08	5.28	1.11	2.58*
NTF Femininity Scale	3.66	.70	3.66	.92	.01
NTM/NTF Self-Control Scale	3.88	1.00	3.57	1.46	1.12
NTM Masculinity Scale	4.08	1.25	4.50	1.28	2.38*
NTM/NTF Competency Scale	4.99	1.23	5.24	1.18	.83

* Significant at .05 level

Career Suitability. Bias in the social sex role attitudes among vocational educators was measured through the use of the Sex Role Attitude Survey. Three factor scores and the total score of the SRAS for the vocational educators were correlated with their attitudes toward the suitability of different vocational areas of study by males and females at the high school level and also with the educators' attitudes toward nontraditional work roles measured by the CWS.

No significant canonical factors emerged from this analysis, indicating that vocational educators' attitudes toward the appropriateness of specific vocational programs for study by both males and females were not related at the .05 level of significance to the degree of sex bias which they held toward appropriate sex roles for men and women. A derived factor significant at the .10 level did emerge which related sex role bias toward attitudes of suitability of all vocational areas of study considered for males, but this alpha level was not considered adequate within the framework of this ex post factor study to merit further consideration (see Table 10).

Attitudes toward Nontraditional Work Roles. When measures of sex role bias among vocational educators were correlated with their attitudes toward nontraditional work roles as measured by the CWS, however, the canonical analysis indicated two significant relationships. Table 11 illustrates that over 61% of the variances in responses were found in common between the variables composing the two sets. In this relationship the total scores of both the SRAS and the CWS loaded very heavily. Also, subscales of the SRAS

Table 10

Relationship of Stereotyped Attitudes of Sex Roles Among Vocational Educators to Perceptions of Suitability of Vocational Programs for Males and Females

Variables	Correlations with Canonical Factors I	II
Attitudes Toward Sex Roles (SRAS)		
Overall Sex Role Stereotypes	(.94)	.22
Stereotypes in Work Roles	(.66)	(.34)
Stereotypes in Personal Traits	(.61)	(.39)
Non-Stereotyped Lifestyles	(.77)	(.34)
Career Study Suitability Perceptions (CSI)		
Career Suitability - Males	(-.93)	-.21
Career Suitability - Females	-.26	(-.62)
Root	.1066	.0623
R^2	.3255	.2499
Chi Square	9.07	5.17
DF	5.0	2.0
Probability	.10	.16

Table 11

Relationship of Stereotyped Attitudes of Sex Roles Among Vocational Educators to Attitudes Toward Nontraditional Workers

Variables	Correlations with Canonical Factors* I	II
Attitudes Toward Sex Roles (SRAS)		
Overall Sex Roles Stereotypes	(.91)	(.36)
Stereotypes in Work Roles	(.91)	.08
Stereotypes in Personal Traits	.29	(.58)
Stereotypes in Lifestyles	(.52)	(.73)
Attitudes Toward Workers in Nontraditional Jobs (CWS)		
NTM Work Role (Receptionist)	.21	(-.46)
NTM Work Role (Nurse)	(-.38)	-.12
NTF Work Role (Pilot)	(-.75)	-.22
NTF Work Role (Auto Mechanic)	(-.36)	(-.42)
NTM Work Role (Day Care Aide)	(-.67)	.23
NTF Work Role (Welder)	(-.50)	(-.66)
NTF femininity Scale	.09	-.02
NTM/NTF Self-Control Scale	.13	(-.41)
NTM/NTF Competency Scale	(-.70)	(-.30)
Overall Attitudes Toward Nontraditional Workers	(-.54)	(-.53)
Root	.3672	.2438
R^2	.6117	.4938
Chi Square	34.77	21.24
DF	14	12
Probability Level	.001	.05

*Only significant roots are reported.

assessing stereotypes in attitudes toward work roles and toward lifestyles for men and women were related negatively to the vocational educators' attitudes toward nontraditional work roles for men and women. Specific subscales of the CWS correlating negatively with the common factor at the .30 level or above were the educators' attitudes toward nontraditional work roles for males as nurses and day care aides, and for females as airline pilots, auto mechanics and welders. Attitudes toward sex role bias were also associated with the vocational educators' view of both men and women performing with competence in nontraditional work roles.

The second canonical factor which was associated with 49% of the total variance in the two sets of variables was somewhat similar to the first, except that here stereotypes in attitudes toward the personal traits of males and females was more involved and stereotypes in attitudes toward work roles were less involved in the set of variables from the SRAS instrument. In respect to the attitudes toward nontraditional work roles, the stereotyped attitudes were negatively related to views of males serving as receptionists and were negatively related toward females working as welders and auto mechanics. In addition, those with strong biases toward men and women's personal traits and lifestyles also viewed nontraditional male workers as less masculine and viewed both men and women in nontraditional work roles as having less control and being less competent. Views of the femininity of women in nontraditional work roles were not associated with sex role stereotypes in either of the two resulting canonical analyses.

These data indicated no relationship between the degree of bias in attitudes of educators to how they felt about both males and females being able to enter all vocational programs at the high school level. Those with more bias in their attitudes toward nonstereotyped lifestyles, however, viewed the performance of men and women in nontraditional work roles as less competent. More of their bias appeared focused at nontraditional male work roles than at nontraditional female work roles.

Combination of Factors Predicting Educators' Attitudes

What combination of the variables of sex, age, race, educational level, length of experience and sex bias in attitudes toward social roles among educators are correlated with their attitudes toward the suitability of vocational programs for study by males and females and with their attitudes toward nontraditional work roles?

Canonical correlation models were employed to isolate the best set of interacting background variables and sex role attitudes for predicting vocational educators' attitudes toward the suitability of vocational programs for study by both sexes at the high school level and for predicting the attitudes of the educators toward nontraditional work roles. Results of these analyses were examined in answering the third research question.

Suitability of Programs for both Sexes. One significant canonical factor was extracted when the educators' background and attitudinal variables were used to predict the subjects' views on the suitability of vocational programs of study for both male and female students. These data are summarized in Table 12. Since this

Table 12

Relationship of Background Variables and Sex Role Bias in Attitudes of Vocational Educators Views of Suitable Career Areas for Male and Female Students

Variables	Canonical Factor I
Personal Factors	
Work with Nontraditional Students	(-.30)
Sex	(-.93)
Race	-.04
Age	-.06
Level of Academic Degree Held	(.32)
Length of Teaching Experience	.13
Sex Stereotyped Attitudes/Work Roles	-.20
Sex Stereotyped/Personal Traits	-.08
Sex Stereotyped Attitudes/Lifestyles	-.26
Career Suitability Perceptions	
Males	(-.41)
Females	(.48)
R^2	.24
Canonical R	.49
Chi Square	21.74
DF	10
Probability level	.05

factor extracted only 24% of the common variance between the two sets of variables, it was realized that only a modest relationship between background variables and sex role attitudinal measures and the criterion set existed. In the observed relationship, as might be expected from the results of the simple correlational studies, sex stereotypes in the subjects' attitudes toward appropriate work role, personal traits and lifestyles for men and women did not load heavily on the factor, nor did the variables of race, age, and length of teaching experience. The overall relationship described in the factor was a pattern of attitudes with more bias toward females and less bias toward males studying in all vocational programs listed in the CSI. Those who held these attitudes were primarily women educators with Master's degrees who had little or no experience in working with students in nontraditional programs of vocational education.

Attitudes toward Nontraditional Work Roles. Table 13 lists data describing three significant factors describing relationships of variables discovered when the vocational educators' background and sex role biasing attitudes were correlated with their attitudes toward males and females working in nontraditional jobs, as measured by the Characteristics of Workers Survey. The first two factors, respectively explaining 67% and 64% of the total variance in the two response sets of variables, appeared nearly equal in significance. Both of these relationships appeared to be more associated with educators who had taught nontraditional students since this variable correlated positively (.62 and .32, respectively) with the factors.

Table 13

Relationship of Background Variables and Sex Role Bias in Attitudes of Vocational Educators to Their Attitudes Toward Nontraditional Work Roles

Variables	Canonical Factors I	II	III
Personal Variables			
Work with Nontraditional Students	(.62)	(.33)	(-.32)
Sex	(.41)	(.63)	-.07
Race	(.32)	(-.47)	(.33)
Age	.00	(.36)	.14
Level of Academic Degree Held	.16	(-.31)	-.22
Length of Teaching Experience	.26	.16	-.23
Sex Bias/Work Roles	.22	(.55)	(.66)
Sex Bias/Personal Traits	(.57)	-.14	(.46)
Sex Bias/Lifestyles	(.40)	.02	(.62)
Attitudes toward Nontraditional Work Roles			
NTM Work Role (Receptionist)	(-.33)	(.39)	(-.36)
NTM Work Role (Nurse)	.07	.00	(-.66)
NTF Work Role (Airline Pilot)	(-.47)	(-.31)	(-.53)
NTF Work Role (Auto Mechanic)	(-.43)	(.30)	(-.45)
NTM Work Role (Day Care Aide)	(-.42)	.28	(-.66)
NTF Work Role (Welder)	(-.31)	.25	(-.70)
NTF Femininity Scale	.05	(.30)	.02
NTM-NTF/Self-Control Scale	(-.36)	.07	(-.31)
NTM Masculinity Scale	-.26	(.31)	-.14
NTM-NTF/Competency Scale	(-.31)	-.21	(-.67)
R^2	.46	.41	.27
Canonical R	.67	.64	.51
DF	18	16	14
Probability	.01	.01	.05

The first factor appeared to describe a set of vocational educators who had less positive attitudes toward men and women working in nontraditional roles since subjects' attitudes on all nontraditional career roles listed in the CWS, except for male nurses, loaded negatively with it. Negative loadings were also indicated for educators' attitudes as measured by the self-control and competency scales for nontraditional workers. It should be noted, however, that these negative attitudes of subjects on this factor were not dimensioned too strongly on the masculinity and femininity; i.e., these subjects' distrust of nontraditional workers were not related to their views of female workers holding nontraditional jobs. The group of educators whose attitudes loaded to the factor, as described, were experienced white males who had taught female students in nontraditional vocational programs. They also reflected more sex bias in their attitudes toward differences in personal traits and lifestyles for men and women than did the sample of educators, as a whole.

The second factor described attitudes of black male vocational educators experienced in working with nontraditional students. These educators were also somewhat older than the educator group as a whole. They held relatively lower academic degrees than the group as a whole, and also expressed more general bias in their views of appropriate work roles for males and females as measured by the SRAS. These subjects appeared to have divided attitudes toward men and women working in nontraditional jobs; i.e., they responded more positively to some work roles for men and women (males as receptionists, females as auto mechanics) and more negatively toward others (female airline pilots). Subjects as reflected in this factor also gave

high masculinity ratings to nontraditional male work roles and high femininity rating to nontraditional female work roles, indicating that their perceptions of the nontraditional workers' performances were not biased on that dimension.

Responses for vocational educators with no experience in teaching students in nontraditional programs were reflected in the third factor which was associated with only 27% of the common variance in the canonical analysis. These educators, who tended to be more often white than black, expressed relatively more bias in attitudes toward appropriate work roles, personal traits and lifestyles of men and women. They also rated all of the nontraditional work roles more negatively and viewed nontraditional workers as having relatively less competency and self-control. This factor was nearly identical with the first one except that it described the traits of educators with no experience in working with students in nontraditional programs, whereas the first factor related to those educators who had taught nontraditional students prior to the study.

Results of these analyses indicate that variables of race and sex among educators, in addition to their experience in working with nontraditional students, do interact in complex relationships with educators' attitudes toward appropriate sex roles for men and women in predicting the attitudes which these subjects have toward men and women performing nontraditional jobs.

Background Factors, Career Influences and Attitudes of Vocational Students

The second phase of data analysis was associated with comparing background factors, career influences and attitudes of students toward nontraditional studies and work roles for males and females. Data were analyzed through the use of four separate sets of dependent variables as outlined in the fourth research question and measured through use of the Vocational Student Background Survey, the attitudinal scale of Crites' Career Maturity Inventory, the Career Suitability Index and the Characteristics of Workers Survey.

In these analyses, characteristics for nontraditional and traditional students within each sex subgroup were first compared for each set of the above criteria. Then, student attitudes toward nontraditional studies and work roles, respectively, were correlated with their background traits and career influence through the use of canonical models. This analysis was done in an effort to explore interactions of career influences and the attitudes which they held toward nonstereotyped work roles.

Finally, all variables showing significant differences between traditional and nontraditional groups were combined in a multivariate discriminant model to determine the best combination of background and attitudinal variables for differentiating between students' enrollments in either traditional or nontraditional classes.

Data derived in this second phase was employed in answering the fourth, fifth and sixth research questions.

Structure of Analysis

Data derived from analysis of the vocational students' responses to the Vocational Student Background Survey were studied to determine if there were differences in the subjects' perceptions of factors influencing their decision to enroll in their current program of vocational studies in high school.

The VSBS elicited responses from students in four broad categories: (1) background factors, such as parents' occupation, grades earned in high school, present and former work experience, and time when decision was made to enroll in their area of vocational study; (2) perceptions of variables related to their decision to study in a specific area of vocational education, including influences of significant others, socioeconomic factors and program-related variables; (3) perceptions of attitudes of others toward entry of students into areas of study considered nontraditional for their sex; and (4) perceptions of the relationship of the students' current studies to their future career plans.

Responses to the indicated items of the VSBS were analyzed through the use of chi square computations or analysis of variance to determine if there were significant differences within sex groups in the perceptions of the students enrolled in nontraditional and traditional programs of study in vocational education. The chi square computations were employed to determine if there were differences in the frequencies of responses to categorical items, beyond that which would be expected by chance. F ratios were computed to determine the significance of variance associated between means for subjects'

responses where the items were recorded on Likert-type scales.

Data are presented for each of the sex groups, respectively, in terms of the four categories discussed. Besides the univariate analyses of separate items, items in which significant differences were indicated between subjects in nontraditional and traditional areas of study were also employed in a multivariate discriminant analysis model to discover the best combination of variables for discriminating between these groups of subjects within sex categories (i.e., between traditional males and nontraditional males and between traditional females and nontraditional females).

Characteristics and Career Influences of Male Students

How did the traditional and nontraditional groups of male vocational students differ on background factors and career influences?

Background factors assessed by the VSBS were race, age, occupation of parents, number of parents at home, high school grades, work experiences and the time when students decided to enter their specific area of vocational study.

Race. The sample of high school students studied contained 14.4% male black subjects (N=34) enrolled in nontraditional vocational courses, 4.2% white nontraditional males (N=10), 37.8% black traditional males (N=84) and 43.4% white traditional males (N=191) Hence, approximately one-fourth of the male black students in the study had elected courses traditionally dominated in enrollment by females in Mississippi. Approximately 12% of the total number of white males were studying in nontraditional vocational classes.

Age. There was a significant difference (.01 level) in the ages of the nontraditional and traditional groups of boys. The mean age for nontraditional males was 17.57 while the mean age for traditional males was 16.84. Males who participated in the study ranged in age from 15 to 21 years.

Work Experience. The VSBS included two items designed to secure data related to students' work experience. The first item asked subjects to report the amount of time they had worked for pay. Table 14 shows there were no significant differences in the amount of time worked between the two groups. However, over 60% of both the nontraditional and traditional groups reported they had worked one year and more. The second item requested information concerning subjects' past or present work experiences. Table 15 reports a significant difference between the two groups in that more nontraditional males had never worked for pay than had traditional males. The data also show that only about 34% of the males in the two groups held any kind of a job at the time of this study.

Parents' Occupation. Data summarizing parents' occupation for the groups of nontraditional and traditional males are shown in Table 16. There were no significant differences in the occupation of the fathers between the two groups. The males in this study reported that more of their fathers were semi-skilled workers, skilled craftsmen/formen, farmers, and proprietors/managers. It should be noted that over 30% of the nontraditional males, as well as over 20% of the traditional males, report "other" as their fathers' occupation.

Table 14

Amount of Time Worked for Pay by Males in Nontraditional and Traditional Programs

Years Experience	Percentage	
	Nontraditional	Traditional
None	13.60	9.90
Less than One Year	25.00	21.90
One Year	9.10	13.50
Two Years	18.20	18.20
Three Years	13.60	15.10
More than Three Years	20.50	21.40
Chi Square	1.25	
DF	5	

Table 15

Work Experiences for Males in Traditional and Nontraditional Areas

Description of Experience	Percentages Nontraditional	Traditional	X^2
Have never Worked for Pay	13.60	4.20	4.18**
Presently Working Part-time	25.00	28.10	.05
Presently Working Full-time	9.10	5.70	.23
Worked during Summer, not Working Now	40.90	50.50	.97
Have Worked After School, not Working Now	11.40	11.50	.06

**Significant at the .05 level.

Table 16

Parents' Occupations for Males Studying in Traditional (T) and Nontraditional (NT) Vocational Programs

Occupation	Percentage of Fathers NT (44)	T (192)	Percentage of Mothers NT (44)	T (192)
Clerical/Sales	4.50	2.10	2.30	9.90
Skilled Craftsman/ Foreman	13.60	20.30	4.50	1.60
Professional	.00	3.10	2.30	1.00
Teacher	.00	2.10	4.50	6.80
Laborer	.00	3.10	.00	.50
Service Worker	.00	2.10	4.50	1.60
Technician	.00	.50	.00	5.20
Semi-Skilled Worker	22.70	17.70	13.60	17.20
Proprietor/Manager	13.60	5.70	4.50	2.10
Farmer	4.50	15.60	.00	.50
Homemaker	.00	1.00	29.50	25.50
Armed Services	.00	.00	.00	.00
Other	31.80	21.90	34.10	23.40
Unknown	9.10	4.20	.00	4.70
Chi Square	17.22		13.93	
DF	13		12	

Table 16 also reports there were no significant differences in the occupation of mothers as reported by the two groups. More of the mothers were homemakers, and semi-skilled workers. Again it should be noted that over 30% of the nontraditional males and over 20% of the traditional males reported "other" as their mothers' occupation. Since there was such a large response to this category concerning both mothers' and fathers' occupations may indicate that the subjects did not understand the given classifications of work. It may also indicate that subjects were unwilling or unable to give better responses to this item.

Parents at Home. There were no differences in the number of parents living at home for the groups of traditional and nontraditional males. Sixty-eight percent of the nontraditional males and 72% of the traditional males reported both parents were living at home. Ninety-three percent of nontraditional males had their mothers living at home as well as 70% of their fathers. For the traditional subjects, 94% of the mothers lived at home, as did 77% of the fathers.

High School Grades. There were no differences in grades between the nontraditional and traditional groups of males. Table 17 shows that the modal grade for the two groups were "mostly B's and C's."

Time of Decision to Study Specific Area of Vocational Education. Significant differences (.01 level) were reported by the traditional and nontraditional males as to when they made the decision to study the vocational area in which they were enrolled at the time of the investigation. Table 18 shows that more of the traditional

Table 17

Grades in High School for Males in Nontraditional and Traditional Programs

Grades	Percentage	
	Nontraditional	Traditional
Mostly A's	4.50	1.00
Mostly A's and B's	18.20	12.50
Mostly B's and C's	50.00	57.30
Mostly C's and D's	25.00	25.00
Mostly D's and Below	2.30	4.20
Chi Square	4.12	
DF	4	

Table 18

Time When Decision to Enter Vocational Studies
Was Made By Males

Time of Decision	Percentage Nontraditional	Traditional	X^2
Before 7th Grade	.00	.00	.00
7th - 8th Grade	4.50	9.90	.69
9th - 10th Grade	45.50	69.80	8.31**
11th - 12th Grade	45.50	17.70	14.08**
Don't Remember	4.50	2.60	.04

**Significant at the .01 level.

males (69% vs. 45%) made their decision to enter the program in the ninth or tenth grades. Significantly more (45% vs. 18%) of the nontraditional males made this decision in the eleventh or twelfth grades.

Factors Related to Males' Decisions to Study in Specific Program

To assess males' perceptions of the influence of specific factors toward their decision to study in a specific vocational area, the following questions were asked: (1) Which reason (from a list given) best describes your decision to enter the program you are now studying? (2) What reaction did you receive from parents, friends, and educators when you expressed an interest in the vocational area you are now studying? (3) How important was the influence of others (from the list) on your decision to enter the vocational area you are studying?

Best Reason for Decision to Study in Area of Vocational Choice. Table 19 shows that there were no differences between the traditional and nontraditional groups of males regarding reasons for entering the specific areas of vocational study. Responses indicated that most of the males of both groups chose their particular area because they wanted to obtain skills for employment.

Reaction of Parents, Friends, and Educators. As indicated in Table 20, there were no significant differences in the perceived reactions of males' parents when the intention to study in a particular vocational area was announced. Sixty-eight percent of the nontraditional males and 58% of the traditional males felt that their

Table 19

Reasons for Males Entering Traditional and Nontraditional Vocational Studies

Reason	Percentage Nontraditional	Traditional	X^2
1. Want to obtain skills for employment	50.00	44.30	.27
2. Chose area because I feel that more people of my sex should enter it	2.30	2.10	.25
3. Work would be different, challenging, rewarding	20.50	20.30	.03
4. My work experiences in this area led me to believe that I could be successful in it	22.70	26.60	.11
5. My best friend is enrolled in this program	.00	.50	.65
6. My parents encouraged me to enter this program	.00	3.60	.62
7. Most of my friends are in this program	2.30	1.60	.10
8. I like the teachers in this program	2.30	1.00	.00

Table 20

Perceived Parents' Reaction to Decision of Males
to Enter Nontraditional and Traditional Study Programs

Reaction	Percentage Nontraditional	Traditional
They were very pleased	68.20	58.30
They encouraged my work	15.90	21.40
They were impressed	11.40	7.80
They were amazed and surprised	.00	4.20
They were opposed	.00	1.00
They didn't care	4.50	6.30
They laughed	.00	1.00
Chi Square	4.56	
DF	6	

parents "were very pleased" with their study plans.

There were significant differences in the perceived reactions of friends (.01 level), and educators (.05 level) as reflected in Tables 21 and 22. Over 22% of the traditional males reported that their friends "were impressed" with their study plans, while approximately 16% of the nontraditional males reported this reaction. Approximately 23% of the nontraditional males said that their friends were "amazed and surprised" at their plans, and 16% of the traditional males indicated this response. Over 33% of the traditional males and 20% of the nontraditional males reported that their friends "didn't care" what their study plans were. Over 20% of the nontraditional males reported that their friends "laughed" when told of their study plans, while only about 3% of the traditional males reported this reaction.

In terms of perceived educators' reaction to males' study plans, over 40% of the traditional males and 25% of the nontraditional males indicated that their teachers "encouraged my work." Approximately 32% of the nontraditional males and 17% of the traditional males reported that educators "were impressed" with their plans. Nontraditional males said that approximately 14% of the educators "were amazed and surprised" at their study plans, and over 7% of the traditional males reported that response. Over 13% of the traditional males reported that educators "didn't care" about their plans, while only 4% of the nontraditional males indicated this response.

In summary, these data appear to indicate that both groups of males were less than confident about their friends support in

Table 21

Perceived Friends' Reaction to Decision of Males to Enter Nontraditional and Traditional Studies

Reaction	Percentage	
	Nontraditional	Traditional
They were very pleased	9.10	9.40
They encouraged my work	9.10	13.00
They were impressed	15.90	22.40
They were amazed and surprised	22.70	16.10
They were opposed	2.30	3.10
They didn't care	20.50	33.30
They laughed	20.50	2.60
Chi Square	23.29**	
DF	6	

**Significant at the .01 level.

Table 22

Perceived Educators' Reactions to Decision of Males to Enter Nontraditional and Traditional Studies

Reaction to Choice of Study	Percentage Nontraditional	Traditional
They were very pleased	15.90	18.20
They encouraged my work	25.00	40.60
They were impressed	31.80	16.70
They were amazed and surprised	13.60	7.30
They were opposed	6.80	3.10
They didn't care	4.50	31.50
They laughed	2.30	.50
Chi Square	13.36**	
DF	6	

**Significant at the .05 level.

their chosen vocational area. A full one-third of the traditional males reported that their friends "didn't care." Well over one-third of the nontraditional males indicated either that their friends "didn't care" or they "laughed" at their decision. However, subjects perceived encouragement and support from their teachers. Over two-thirds of the subjects indicated that educators "were very pleased," "encouraged my work," and "were impressed" with the vocational decision.

Importance of Significant Others to Choice of Study Area. Data illustrated in Table 23 show there were significant differences (.01 level) between how the groups of traditional and nontraditional males perceived the influence of people, or groups of people, on their decision of vocational studies. Influential others for which significant differences were found were: female friends, counselors, and regular teachers. In all three instances, nontraditional males rated the influence of these groups higher than did the traditional group.

Importance of Program-Related and Socioeconomic Factors in Decision. Table 24 reports one significant difference between the traditional and nontraditional groups of males in this group of items. The traditional males gave a significantly higher rating to studying in an area that offers good salary opportunities than did the nontraditional males.

Perceived Attitudes of Others Toward Nontraditional Career Areas

Attitudes Toward Women Mechanics. As shown in Table 25 there were significant differences (.05 level) in the perception of males in traditional and nontraditional vocational areas when asked to assess the importance of attitudes of others toward keeping a woman from

Table 23

Influence of People on Males' Decision to Enter Nontraditional and Traditional Vocational Studies

Influential Persons	Nontraditional $\bar{X}$	Nontraditional SD	Traditional $\bar{X}$	Traditional SD	F
Father	3.50	1.41	3.60	1.49	.16
Mother	3.98	1.15	3.70	1.32	1.61
Brother	2.45	1.30	2.88	1.48	3.07
Sister	2.82	1.50	2.53	1.39	1.49
Female Friends	3.16	1.22	2.56	1.38	7.01**
Male Friends	2.77	1.38	3.05	1.31	1.61
Counselor	3.48	1.44	2.74	1.44	9.30**
Regular Teacher	3.30	1.41	2.60	1.41	8.57**
Vocational Teacher	4.18	1.23	3.93	1.39	1.21
School Principal	2.77	1.58	2.56	1.53	.66
Employer	2.88	1.50	2.74	1.58	.29
Myself	4.41	1.11	4.55	1.01	.65

**Significant at the .01 level.

Table 24

Factors Influencing Decision of Males to Enter Nontraditional and Traditional Areas of Vocational Study

Influential Factors	Nontraditional $\bar{X}$	Nontraditional SD	Traditional $\bar{X}$	Traditional SD	F
Offers Good Salary Opportunities	3.48	1.36	4.07	1.22	8.17**
Offers Job Opportunities Close to Home	3.43	1.17	3.15	1.40	1.59
Offers Job Opportunities Away From Home	3.16	1.35	2.74	1.47	2.94
Offers Steady Employment	3.66	1.14	3.67	1.33	.00
Is Related to Work I Have Had Before	3.18	1.60	2.95	1.61	.73
Will Allow Me to Make Marriage Plans Sooner	2.18	1.26	1.97	1.28	.94
Was Available at My School and I will be Looking for Work When I Finish School	3.25	1.42	3.25	1.49	.00
Has Good Teachers and Counselors	3.52	1.36	3.71	1.42	.66
Is Related to my Parent's Occupation	2.27	1.40	2.21	1.51	.06
Has a High Prestige Value in My Community	2.86	1.34	2.71	1.38	.46
Sounded Interesting	3.64	1.43	3.85	1.28	.94

**Significant at the .01 level.

Table 25

Perceptions of Males Studying in Nontraditional and Traditional Areas as to Attitudes of Influential Others Toward Girls (Women) Studying to be an Automobile Mechanic

Attitudes of Influential Others	Nontraditional $\bar{X}$	Nontraditional SD	Traditional $\bar{X}$	Traditional SD	F
Male Friends	3.32	1.31	3.61	1.40	1.58
Female Friends	3.36	1.33	3.33	1.45	.02
Mother	3.55	1.30	3.54	1.44	.00
Father	3.09	1.36	3.64	1.45	5.15*
Family Members	2.95	1.06	3.11	1.25	.62
Co-Workers	3.32	1.33	2.94	1.37	2.73
Employers	3.64	1.24	3.10	1.41	5.46*
Community	2.95	1.33	2.78	1.30	.63
Teachers	3.32	1.47	3.04	1.42	1.34
Counselors	3.23	1.27	2.86	1.44	2.37
School Administrators	3.02	1.39	2.85	1.45	.49

*Significant at the .05 level.

working as an automobile mechanic. This item of the VSBS required the two groups to rate the importance of the attitudes of certain people in keeping a woman from studying to become a mechanic. This item was designed to measure indirectly how much opposition from significant others was perceived by the males for women who pursue nontraditional studies. Traditional males rated the attitudes of fathers as being significantly more important on this criterion than did the nontraditional males. Conversely, nontraditional males saw attitudes of employers as being significantly more important. It appears that traditional males see the need for positive support from father for women working in nontraditional areas, while nontraditional males see the need for more support from employers.

Attitudes toward a Man as Secretary. One significant difference (.05 level) was found when subjects in the two groups were asked to rate the influence of attitudes of others in keeping a man from working as a secretary. The nontraditional males saw the attitudes of other family members (other than father and mother) to be significantly more important than any other person in keeping a male from working in this area. These data are shown in Table 26.

Relationship of Career Plans to Current Studies

Subjects were asked to respond to four questions related to their current and future work plans: (1) What relationship is there between your work experience and current studies? (2) How closely related are current vocational studies to the job you expect to have after finishing school? (3) How confident are you that in five years

Table 26

Perceptions of Males Studying in Nontraditional and Traditional Areas as to Attitudes of Influential Others Toward Boys (Men) Studying to be a Secretary

Attitudes of Influential Others	Nontraditional $\bar{X}$	SD	Traditional $\bar{X}$	SD	F
Male Friends	3.38	1.54	3.43	1.57	.03
Female Friends	3.09	1.34	3.43	1.43	2.03
Mother	3.52	1.17	3.20	1.41	2.02
Father	3.18	1.35	3.27	1.52	.11
Other Family Members	3.45	1.23	3.01	1.28	4.25*
Co-Workers	3.25	1.08	2.84	1.32	3.57
Employer	3.15	1.22	3.12	1.41	.02
Community	2.79	1.07	2.74	1.33	.05
Teachers	3.23	1.33	2.93	1.41	1.60
Counselors	3.20	1.30	2.82	1.38	2.85
School Administrators	2.98	1.35	2.79	1.43	.65

*Significant at the .05 level.

you will be working in the occupational field now being studied? (4) What are your plans once you finish high school?

Relationship of Work Experience to Studies. For this item, neither the nontraditional males nor the traditional males saw a strong relationship between their work experience to the vocational programs they were pursuing in school, since they rated the item only "2" on a "5" scale. Table 27 presents data relative to this variable.

Relationship of Future Job to Present Studies. Table 27 also shows there were no significant differences between the two groups of males on this item. Both groups perceived "some relationship" between their expected future job and the area they were studying.

Confidence for Working Five Years Later in Area of Study. As indicated in Table 27, there were no significant differences in responses to this variable by the two groups of males. Both groups appeared to be somewhat confident that in five years they would be working in the area they were studying.

Plans after High School. There was one significant difference (see Table 28) between the nontraditional and traditional groups of males when asked to respond to what their future plans were. Significantly more of the nontraditional males expressed an intention to attend a four-year college than did traditional males.

Background Variables Discriminating Between Groups

What is the best set of career influences and background variables for discriminating between the groups of traditional and

Table 27

Relationship of Present Vocational Study
to Job Status Factors

Factor	Nontraditional $\bar{X}$	Nontraditional SD	Traditional $\bar{X}$	Traditional SD	F
Relationship of Work Experience to Area Now Studying	2.02	1.58	2.20	1.60	.45
Relationship of Expected Future Job to Area Now Studying	3.29	1.62	3.59	1.53	1.33
Confidence for Working Five Years Later in Area Now Studying	3.14	1.46	3.30	1.37	.96

Table 28

Plans After Graduation from High School for Males in Nontraditional and Traditional Vocational Programs

Plan	Percentages Nontraditional	Traditional	X^2
Undecided	15.90	12.00	.21
Attend a 2-year College	18.20	12.50	.56
Attend a 4-year College	31.80	14.60	7.43**
Go to Work in Occupational Area Now Studying	6.80	20.30	3.58
Go to Work in Another, Different Occupation	11.40	7.80	.21
Go to Trade School, Business College	4.50	10.90	1.02
Continue Training in Vocational-Technical Center	4.50	5.70	.00
Enter Armed Services	6.80	16.10	1.83
Marriage	.00	.00	.00

**Significant at the .05 level.

nontraditional male students? Eleven of the items on the Vocational Students Background Survey indicated significant differences between the males enrolled in nontraditional programs of vocational study and those enrolled in traditional programs. These items were entered in a discriminant analysis statistical model in order to determine the most effective set of variables for discriminating between the background and career study influence variables for the two groups of males.

In the resulting analysis of the discriminant solution, six of the eleven variables were found to make significant contributions in discriminating between the characteristics of the nontraditional and traditional groups of males. The canonical correlation for the predictor set of six variables with group membership for the males was .472 and the Wilks' Lambda derived from the multivariate analysis was .78. This value is equivalent to a chi-square of 57.93 at 8 degrees of freedom. These data reflect broad differences in background factors and perceived career study influences for males enrolled in nontraditional and traditional programs of vocational education.

Table 29 summarizes the data related to the set of variables that discriminate between the two groups of males. The variables are listed in the table according to their order of entry into the discriminant function (i.e., their influence on reducing the Wilks' Lambda, or their power for discriminating between members of the two groups). As indicated, the most effective discriminator was whether or not the subjects decided to enter the program of study in the 11th and 12th grades. Other discriminators were influence of

Table 29

Background and Influential Factors Discriminating Between Nontraditional and Traditional Males

Discriminating Factors	F to Enter	Wilks' Lambda	Change in Rao's V	Standardized Discriminant Function Coefficient
Decision to Enter Vocational Area Made in 11th-12th Grade	16.58	.9338	16.58*	-.47
Influence of Counselor on Choice of Vocational Area	9.68	.8966	10.41*	-.29
Decision to Enter Program Because Offers Good Salary Opportunities	9.93	.8590	11.17*	.44
Attitudes of Father Toward Women Studying to be Automobile Mechanic	7.49	.8328	8.82*	.46
Attitudes of Other Family Members Toward Men Studying to be Secretaries	7.41	.8068	9.05*	-.25
Influence of Regular Teachers on Choice of Vocational Area	4.93	.7898	6.24*	-.32

*Significant at .01 level.

counselor on choice of vocational area, perceptions of the importance of attitudes of father which would keep women from studying to become automobile mechanics, perceptions of the importance of other family members (besides father and mother) which would keep men from studying to become secretaries, and influence of regular teachers on choice of vocational area.

In summary, it appears that nontraditional males made the decision to enter their vocational study area in the 11th or 12th grades. They credited the influence of counselors and regular classroom teachers as being important to their decision. They also perceived the attitudes of other family members (besides father and mother) would be most likely to keep a man from studying in nontraditional programs, such as secretarial science. Good salary opportunities were more important for those entering traditional programs than those in nontraditional areas. Finally, traditional males felt more surely that the attitudes of fathers would keep females from studying to become automobile mechanics, more so than did nontraditional males.

Characteristics and Work Related Attitudes of Female Students

How do traditional and nontraditional females compare in background factors and other career influences?

Background Factors

Background factors assessed in the questionnaire were race, age, occupation of parents, number of parents at home, high school grades, and when students decided to enter their specific area of study.

Race. The number of black and white traditional female subjects in the study (Ns equal to 95 and 89, respectively) were nearly equal, but the nontraditional group of females had nearly four times as many black students (N=177) than white (N=44). The proportion of black to white students in the sample appeared somewhat representative of the total population of nontraditional students in Mississippi.

Age. No significant difference was found in the ages of the nontraditional and traditional groups of females. Females in the study ranged in age from 16 to 21 years.

Work Experience. Two items of the VSBS were designed to secure data related to the work experience of the students. First the subjects were asked to report the amount of time they had worked for pay. No significant difference was found in the amount of work reported for the two groups. Over 70% of the subjects in both the nontraditional and traditional groups had worked less than one year. In the response to the second item related to work experience, a significant difference was found in the time of year in which the two groups worked. More of the females in the nontraditional area, however, had worked during summers, but were not working at the time of the study. These data may indicate that part-time jobs for secretaries, clerical assistants and office workers are more readily available than are part-time jobs during school terms for female mechanics, plumbers, and electricians. Data related to work experience of females are given in Tables 30 and 31.

Table 30

Amount of Time Worked for Pay by Females in Nontraditional and Traditional Programs

Years' Experience	Nontraditional	Traditional
None	47.10	41.00
Less than One Year	25.10	31.50
One Year	10.10	10.10
Two Years	11.00	10.70
Three Years	2.60	5.60
More than 3 Years	4.40	.60
Chi Square	11.09	
DF	6	

Table 31

Amount of Work Experience for Females in Traditional and Nontraditional Areas of Vocational Education

Description of Experience	Nontraditional	Traditional	x^2
Have Never Worked for Pay	34.80	35.40	.00
Presently Working Part-Time	6.60	17.40	10.53*
Presently Working Full-Time	.40	1.10	.04
Worked During Summer, Not Working Now	48.50	36.00	5.86
Have Worked After School, Not Working Now	9.70	10.10	.00

* Significant at .05 level.

Parents' Occupation. Data summarizing parents' occupations for the nontraditional and traditional females are given in Table 32. No significant differences were found in the occupations of fathers as reported by the two groups. More of the fathers for both groups were semi-skilled workers, skilled craftsmen/foremen or farmers. It was also noted that over 30% of the females studying in both traditional and nontraditional areas of vocational education cited "other" as their father's occupation.

A significant difference (.01 level) in occupations of mothers was noted by subjects in the nontraditional and traditional groups. More mothers of females studying in traditional programs were working in clerical/sales and semi-skilled positions. Also, fewer of the traditional group cited "other" as the occupation for their mothers. These data appear to indicate that the job descriptions of the mothers for the traditional group were more clearly differentiated and were based more on traditional work patterns than were the ones for subjects in nontraditional areas of study.

Parents at Home. No differences were found in the number of parents living at home for females in the nontraditional and traditional areas of study. Sixty percent of the nontraditional subjects and 67% of the traditional subjects reported that both parents were living at home. Further, 65.2% of the nontraditional females had their fathers living at home, and 94.7% of the same group lived with their mothers. Over 71% of the traditional subjects' fathers and 93.3% of their mothers were at home.

Table 32

Parents' Occupations for Females Studying in Traditional (T) and Nontraditional (NT) Programs

Occupation	Percent of Fathers T (N=227)	Percent of Fathers NT (N=178)	Percent of Mothers T (N=227)	Percent of Mothers NT (N=178)
Clerical/Sales	.90	3.40	3.50	12.90
Skilled Craftsman/Foreman	11.00	12.90	1.80	1.70
Professional	2.60	1.70	.00	.60
Teacher	.90	2.80	4.40	3.90
Laborer	2.60	1.10	.40	.60
Service Worker	2.60	1.00	.90	.60
Technician	.40	.00	6.60	4.50
Semi-Skilled Worker	16.70	18.00	8.80	18.50
Proprietor/Manager	4.00	6.70	.40	1.70
Farmer	16.30	16.30	.90	1.10
Homemaker	.40	.00	39.60	36.30
Armed Services	.40	1.70	--	--
Other	32.20	31.50	27.30	19.70
Unknown	8.80	2.80	5.30	.00
Chi-Square	18.87		35.25**	
DF	13		12	

*Significant at .05 level
**Significant at .01 level.

High School Grades. Females pursuing the traditional course of vocational study reported significantly higher grades than did their counterparts studying in nontraditional programs. These data are summarized in Table 33. The modal grades reported by both groups were "mostly B's and C's," but 23% of the nontraditional subjects marked that their high school grades were in the "mostly C's and D's" range. Fewer females studying traditional courses of vocational education (10.7%) indicated that their grades were in that range. Hence, the subjects in the traditional group appeared to have better academic records in high school than did females electing to study in nontraditional areas.

Time of Decision to Study Specific Area of Vocational Education. No significant differences were found in the time reported by the nontraditional and traditional groups as to when they decided to study the specific vocational programs in which they were currently enrolled. These data are given in Table 34. Over 60% of the members of both groups made this decision in either the 9th or 10th grades. Over 30% of both groups decided to study in their specific area in either the 11th or 12th grades.

Factors Related to Decision to Study in Specific Program

To assess the females' perceptions of the influence of specific factors related to their decision to study in their specific area of vocational education, they were asked the following questions: (1) Which reason (from a list given) best describes your decision to enter the program you are now studying? (2) What reactions did you receive from parents, friends and educators when

Table 33

Grades Earned in High School by Females

Grades	Percentages Nontraditional	Traditional
Mostly A's	3.10	3.90
Mostly A's and B's	15.90	30.90
Mostly B's and C's	55.90	53.90
Mostly C's and D's	23.30	10.70
Mostly D's and Below	1.80	.60
Chi Square	20.50**	
DF	4	

**Significant at .01 level.

Table 34

When Decision to Enter Vocational Study was Made by Females in Nontraditional and Traditional Programs

Time of Decision	Percentages Nontraditional	Traditional	x^2
Before 7th Grade	.00	1.10	.79
7th - 8th Grade	6.20	2.20	2.75
9th - 10th Grade	60.40	65.20	.79
11th - 12th Grade	31.30	30.30	.01
Don't Remember	2.20	.60	.89

you expressed an interest in the vocational area you are now studying? (3) How important was the influence of others (from a list) on your decision to enter your area of vocational education? and (4) How important were program-related factors (from a list) in influencing you in your decision to enter your specific vocational area?

Best Reason for Decision to Study in Area of Vocational Choice. In a forced choice item, significant differences (.01 level) were indicated in the frequencies of reasons marked for entry into their specific programs of vocational study between the nontraditional and traditional groups of females. These data are given in Table 35.

Significantly more females in the traditional group marked the item "I want to obtain skills to enable me to find employment" than did those in the nontraditional group, as the reason for their selection of their program of study. Over 51% of the traditional females selected this reason as most influential in their decision, while only 19.8% of the nontraditional females were attracted to their studies for that reason. Conversely, 13.7% of the nontraditional group chose their particular vocational area "because I feel that more people of my sex should enter it," while only 2.2% of the traditional females chose this reason as their major motivating factor. The third motivational factor in which a significant difference was discovered in the answers of the two groups, was their response to the item, "this work would be challenging, different and rewarding." Nearly 32% of the nontraditional subjects selected this reason for their major motivation to enter their specific

Table 35

Reasons for Females Entering Traditional and Nontraditional Studies

Reason for Entering Course	Percentages Nontraditional	Traditional	x^2
1. Want to obtain skills for employment.	19.80	53.70	43.38**
2. Chose area because I feel that more people of my sex should enter it.	13.70	2.20	15.06**
3. Work should be different, challenging, rewarding.	31.70	19.10	7.58**
4. My work experiences in this area led me to believe that I could be successful in it.	21.60	18.50	.40
5. My best friend is enrolled in this program.	4.80	2.20	1.23
6. My parents encouraged me to enter this program.	1.80	2.20	.00
7. Most of my friends are in this program.	4.80	3.40	.24
8. I like the teachers in program.	.90	.60	

**Significant at .01 level.

area of study while only 19.1% of the traditional females marked this reason.

These data appear to indicate that females studying in traditional areas (business/office practices and home economics) were motivated by traditional, extrinsic reasons for entry into vocational studies for women while the females in the nontraditional programs were attracted to their studies because of the personal challenge.

Reaction of Parents, Friends and Educators. Significant differences (.01 level) were perceived in the reaction of parents, friends and educators by females in the nontraditional and traditional groups when they announced their decision to study in their particular vocational programs. These data are given in Tables 36-38.

Over 65% of the traditional females marked that parents "were very pleased" when they were told of their study plans, while 52.2% of the nontraditional females reported the same reaction from their parents. Also, 16.8% of the traditional females said that their parents "encouraged my work" while 12.8% of the nontraditional females noted this parent response. Nearly 16% of the nontraditional group said their parents were "amazed and surprised" when the students decided to enter the fields of study traditionally studied by males. Only 3.4% of the traditional females marked that their parents were amazed and surprised that they chose to study in the selected area.

Over 47% of the traditional group reported their friends were either very pleased, impressed or encouraged their work in the area of choice for their vocational studies, while approximately 35% of the nontraditional group noted the same responses from their friends.

Table 36

Perceived Parents' Reactions to Decisions of Females to Enter Nontraditional and Traditional Areas of Vocational Study

Reactions to Choice of Study	Percentages Nontraditional	Traditional
They were very pleased	52.50	65.40
They encouraged my work	12.80	16.80
They were impressed	9.30	8.90
They were amazed and surprised	15.90	3.40
They were opposed	2.70	1.10
They did not care	6.60	4.50
They laughed	0.40	0.00
x^2	22.04**	
DF	6	

**Significant at .01 level.

Table 37

Perceived Teachers' Reactions to Decisions of Females to Enter Nontraditional and Traditional Studies

Reactions to Choice of Study	Percentages Nontraditional	Traditional
They were very pleased	19.00	21.80
They encouraged my work	35.00	48.00
They were impressed	15.90	10.60
They were amazed and surprised	17.70	6.70
They were opposed	2.70	1.70
They did not care	8.00	11.20
They laughed	1.80	0.00
Chi-Square	20.75**	
DF	6	

**Significant at .01 level.

Table 38

Perceived Friends' Reaction to Decision of Females to Enter Nontraditional and Traditional Studies

Reaction to Choice of Study	Percentage Nontraditional	Traditional
They were very pleased	8.80	12.80
They encouraged my work	4.90	7.80
They were impressed	22.10	27.40
They were amazed and surprised	32.30	18.40
They were opposed	3.10	2.20
They didn't care	15.00	30.70
They laughed	13.70	0.60
Chi-square	44.72**	
DF	6	

**Significant at .01 level.

Over 32% of the nontraditional group, as contrasted with 18.4% of the traditional group, noted that their friends were "amazed and surprised" by their choice of studies. "They laughed," was the response noted from friends by 13.7% of the traditional group of females and only 0.6% of the traditional group.

In educators' reactions to the programs elected by the traditional and nontraditional groups of females, the main differences appeared to lie in the following responses: "They encouraged my work," "they were impressed," and "they were amazed and surprised." In the nontraditional group, 35% of the females said the educators encouraged their work; 5.9% said the educators were impressed by their electing nontraditional studies and 17.7% noted that the educators were amazed and surprised. Forty-eight percent of the traditional females said educators encouraged their work; 10.6% said educators were impressed with their choice of study and only 6.7% of the educators were noted as being amazed and surprised by their choice.

In summary, these data appear to indicate that a majority of the females in the nontraditional studies perceived support and encouragement from their parents. Over two-thirds reported positive reactions from educators. More of them, however, found their friends were amazed and surprised or laughed at their decision to study in the nontraditional programs than were encouraging.

Importance of Significant Others to Choice of Study. In reaction to the question of how important the influence of others was to their decision to enter their particular area of vocational study in high school, significant differences were shown in the

responses of females in nontraditional and traditional areas to six persons. These data are given in Table 39. Influential others for which significant differences were indicated were: male friends, female friends, mother, brothers, school administrators and self. Nontraditional females rated the influence of school administrators significantly higher than did the traditional group. Conversely, the traditional group rated the influence of male friends, female friends, mother and self as significantly more important in making their decision to study in their programs of vocational education. These data indicate that the influential others for the nontraditional group were usually male educators, while the influential others for the traditional group were more often females.

Importance of Program-Related and Socioeconomic Factors in Decision. Three program and socioeconomically based factors differentiated between the traditional and nontraditional groups on their relative influence as motivating factors for entry into specific programs of vocational study. They were: (1) work in the area of study offered good salary opportunities; (2) work offers steady employment and (3) training leads to work that is related to parents' occupation. Significantly higher ratings were given by the traditional females to the importance of studying in an area that offers good salary opportunities and also that leads to careers offering steady employment. Females in the nontraditional area rated "relationship to parents' occupation" significantly higher in influencing their decision to study their area of vocational education than did the traditional group (See Table 40).

Table 39

Influence of People on Females' Decision to Enter Nontraditional and Traditional Studies

Influential Person	Nontraditional $\bar{X}$	Nontraditional SD	Traditional $\bar{X}$	Traditional SD	F
Father	2.70	1.56	2.80	1.53	.68
Mother	3.42	1.49	3.98	1.26	16.47**
Brother	2.57	1.51	2.14	1.38	8.69**
Sister	2.62	1.49	2.52	1.52	.51
Female Friends	2.79	1.45	3.10	1.28	4.99*
Male Friends	2.69	1.53	2.44	1.33	3.78*
Counselor(s)	3.04	1.65	2.98	1.60	.11
Regular Teacher(s)	2.71	1.56	2.78	1.41	.17
Vocational Teacher(s)	3.90	1.51	3.66	1.50	2.48
School Principal	2.79	1.75	2.38	1.50	6.34*
Employer	2.17	1.49	1.93	1.38	2.82
Myself	4.47	1.06	4.70	.77	6.42*

*Significant at .05 level
**Significant at .01 level.

Table 40

Factors Influencing Decision of Females to Enter Nontraditional and Traditional Areas of Vocational Study

Reasons for Choice of Study	Nontraditional $\bar{X}$	Nontraditional SD	Traditional $\bar{X}$	Traditional SD	F
Offers Good Salary Opportunity	2.96	1.61	3.66	1.37	21.31**
Offers Job Opportunities Close to Home	2.56	1.55	2.85	1.48	3.62
Offers Job Opportunities Away from Home	2.54	1.57	2.57	1.50	.06
Offers Steady Employment	2.93	1.61	3.47	1.48	11.74**
Is Related to Work I have had Before	2.09	1.51	1.98	1.46	.48
Will Allow me to Make Marriage Plans Sooner	1.71	1.29	1.93	1.38	2.72
Was Available at my School and I will be Looking for Work when I Finish High School	3.48	1.61	3.29	1.55	1.47
Has Good Teachers and Counselors	3.44	1.60	3.55	1.39	.58
Is Related to my Parent's Occupation	2.24	1.65	1.76	1.23	10.24**
Has High Prestige Value in Community	2.50	1.54	2.13	1.35	6.36
Sounded Interesting	4.07	1.34	3.70	1.32	7.56

**Significant at .01 level.

Perceived Attitudes of Others Toward Nontraditional Career Choices

Attitudes toward Women Mechanics. As noted in Table 41, significant differences in the perceptions of females studying in nontraditional and traditional areas of vocational education were noted when subjects were asked to assess the importance of attitudes of others toward keeping a woman from becoming an automotive mechanic. This item of the VSBS was designed to measure indirectly how much opposition from significant others was perceived by the females for women who pursue nontraditional studies. The nontraditional females rated attitudes for four persons or groups as significantly more important in keeping the woman from being a mechanic than did the females studying in traditional areas. The nontraditional females saw the attitudes of other family members (besides father and mother), as well as teachers, counselors and school administrators as being more important. From inference, then, it appears that females in nontraditional areas of vocational education saw the need for more support from family and educators for females working in nontraditional jobs than did the traditional females.

Attitudes toward a Man as Secretary. When subjects in the two groups were asked to rate the significance of attitudes of others toward keeping a male from working as a secretary in an office, differences in perceptions were also discovered. The females in traditional studies perceived the attitudes of fathers, male friends and female friends to be significantly more important. The nontraditional group of subjects, however, saw the attitudes of teachers, counselors and school administrators to be significantly more

Table 41

Perceptions of Females Studying in Nontraditional and Traditional Areas as to Attitudes of Influential Others Toward Females Studying to be an Automotive Mechanic

Attitudes of Influential Others	Nontraditional $\bar{X}$	Nontraditional SD	Traditional $\bar{X}$	Traditional SD	F
Male Friends	2.98	1.57	3.08	1.61	0.41
Female Friends	3.07	1.53	3.16	1.48	0.37
Mother	3.36	1.57	3.06	1.48	0.41
Father	3.21	1.65	3.29	1.52	0.23
Other Family Members	3.01	1.40	2.69	1.35	5.60*
Co-Workers	2.84	1.53	2.82	1.38	0.00
Employer	2.85	1.62	2.88	1.50	0.02
Community	2.70	1.51	2.42	1.39	3.76
Teachers	3.01	1.58	2.64	1.49	5.76*
Counselors	2.94	1.59	2.55	1.45	6.53*
School Administrators	3.01	1.66	2.41	1.67	14.43**

*Significant at .05 level
**Significant at .01 level.

important in keeping a male working as a secretary. These data are given in Table 42.

Relationship of Career Plans to Studies

Students were asked four questions related to their current and future work plans: (1) What relationship is there between their work experience and current studies? How closely related are current vocational studies to the job expected to do after high school? (3) How confident are you that in five years you will be working in the occupational field you are now studying? and (4) What are your plans once you finish high school?

Relationship of Work Experience to Studies. Both the nontraditional and traditional groups indicated very little relationship between their work experience and the studies they were pursuing in their school programs. As presented in Table 43, the two groups did not differ in their assessment of this variable.

Relationship of Future Job to Present Studies. The traditional females saw a significantly closer relationship between their present studies and the job they planned to get when finishing high school than did the nontraditional group. In a five-point scale, with a "5" indicating "very closely related" and "1" meaning "not related at all," the traditional females marked the relationship of their future job to present studies with a mean of 3.49. Their counterparts in the nontraditional group had a mean of 2.69 for this same item (see Table 43).

Table 42

Perceptions of Females Studying in Nontraditional and Traditional Areas as to Attitudes of Influential Others Toward Males Studying to be a Secretary

Attitudes of Influential Others	Nontraditional $\bar{X}$	Nontraditional SD	Traditional $\bar{X}$	Traditional SD	F
Male Friends	3.14	1.69	3.91	1.48	22.63**
Female Friends	3.34	1.54	3.70	1.35	5.99*
Mother	3.34	1.46	3.49	1.46	0.92
Father	3.08	1.61	3.53	1.55	8.04**
Other Family Members	2.88	1.42	2.87	1.37	0.00
Co-Workers	3.09	1.40	2.98	1.36	0.61
Employer	3.22	1.54	3.06	1.37	1.17
Community	2.77	1.46	2.56	1.45	2.36
Teachers	3.24	1.56	2.72	1.37	12.17**
Counselors	2.98	1.58	2.62	1.40	5.38*
School Administrators	3.09	1.66	2.55	1.44	11.89**

*Significant at .05 level
**Significant at .01 level.

Table 43

Relationship of Present Area of Study to Present and Future Job Status Factors as Perceived by Females Studying in Nontraditional and Traditional Areas

Work Related Variables	Nontraditional $\bar{X}$	Nontraditional SD	Traditional $\bar{X}$	Traditional SD	F
Relationship of Work Experience to Area Now Studying	1.48	1.15	1.56	1.15	.44
Relationship of Expected Future Job to Area Now Studying	2.62	1.54	3.49	1.49	32.48**
Confidence for Working Five Years Later in Area Now Studying	2.62	1.34	3.17	1.34	16.70**

**Significant at .01 level.

Table 44

Plans After Graduation from High School for Females in Nontraditional and Traditional Vocational Programs

Plan	Percentages Nontraditional	Traditional	X^2
1. Undecided	21.1	18.0	1.29
2. Attend a 2-year College	14.5	17.4	.42
3. Attend a 4-year College	21.6	24.7	.39
4. Go to Work in Occupational Area Now Studying	7.9	8.4	.00
5. Go to Work in Another, Different Occupation	8.4	4.5	1.83
6. Go to Trade School, Business College	8.4	13.5	2.24
7. Continue Training in Vocational-Technical Center	3.1	3.4	.01
8. Enter Armed Services	11.5	2.8	.00
9. Marriage	4.4	7.3	1.56

Confidence for Working Five Years Later in Area of Study. The same difference as reported above were also indicated for the nontraditional and traditional female groups toward the relationship of their current studies to the job they expected to be pursuing five years after graduation. As given in Table 43, traditional subjects had more confidence that they would be working in the area of their current vocational preparation than did the nontraditional females.

Plans After High School. In further study of projected future work, the two groups were asked to mark their plans once they had finished high school. No differences were found in the plans of the traditional and nontraditional female subjects. More members of both groups planned to attend a four-year college or were undecided about their future plans. See Table 44.

Background Variables Discriminating Between Groups

What combination of background variables and career influences best discriminated between traditional and nontraditional female vocational studies?

Twenty-five of the items on the Vocational Students Background Survey were found to indicate significant differences between the backgrounds of the females pursuing nontraditional and traditional areas of vocational study, respectively. These items were next entered in a discriminant analysis statistical model to determine the most effective set of variables for discriminating between the background and career study influence variables for the two groups. Some of the 25 variables appeared closely related; hence the multivariate analysis would eliminate overlap in describing a

set of variables for differentiating between the two groups.

In the discriminant analysis 12 of the 25 variables were found to make significant contributions to the discrimination between the characteristics of the nontraditional and traditional groups of female students. The canonical correlation for the predictor set of 12 variables with group membership for the girls was .594 and the Wilks' Lambda derived from the multivariate analysis was .65. This value is equivalent to a chi-square of 172.2 at 16 degrees of freedom. These data show a wide overall difference in background factors and perceived career study influences for females who elected nontraditional and traditional programs of vocational education.

Data related to the set of variables discriminating between the two groups are summarized in Table 45. The variables are listed in the table in the order of their entry into the discriminant function (i.e., their influence on reducing the Wilks' Lambda, or their power for discriminating between the members of the two groups). The most effective discriminator was whether or not the students chose "wanting to obtain skills to enable them to find employment" as their reason for deciding to enter their present area of vocational study. Other discriminators were subject perceptions of importance of attitudes of male friends which would keep a male from being a secretary, importance of attitudes of school administrators in keeping a female from being an automotive mechanic, influence of mother on choice of vocational area, having current part-time work, perceived relationship of current vocational studies to work directly after high school, influence of brother on choice of vocational study areas, importance of teachers' attitudes in keeping a male from becoming a

Table 45

Background and Influential Factors Discriminating Between Nontraditional and Traditional Females

Discriminating Factors	F to Enter	Wilks' Lambda	Change in Rao's V	Standardized Discriminate Function Coefficient
Decision to Enter Program to Secure Skills for Employment	53.03	.8838	53.03***	.35
Attitude of Male Friends Toward A Man Being a Secretary	21.76	.8384	24.68***	.23
Attitude of School Administrator Toward Women Studying to Be Automobile Mechanics	18.12	.8021	21.72***	.20
Influence of Mother on Choice of Vocational Area	21.60	.7609	27.16***	.29
Presently Working Part-Time	11.12	.7403	14.77***	.20
Relationship of Vocational Study to Job Expected After High School	9.80	.7226	13.41***	.18
Influence of Brother on Choice of Vocational Area	11.74	.7018	16.51***	.24
Influence of Female Friends on Choice of Vocational Area	9.51	.6853	13.79**	.25
Attitudes of Teachers Toward a Man Becoming a Secretary	5.73	.6755	8.54**	.32
Decision to Enter Program Because Felt that More People of My Sex Should Enter it	3.32	.6632	5.09*	.16
Grades in High School	3.04	.6581	4.72*	.12
Attitudes of Family Members Keeping Woman from Being a Mechanic	2.44	.6540	3.82*	.15

secretary, whether the decision to enter present program of studies was motivated because it was felt that more females should enter it, grades in high school and importance of attitudes of other family members (besides mother and father) in keeping a woman from being a mechanic.

In summary, the females in the nontraditional programs of vocational study, as contrasted with their counterparts in the traditional programs, did not enter their current studies for securing skills directly needed for employment. They chose their program because they felt that more females should enter these programs. They also felt that attitudes of male friends would be less important and attitudes of teachers would be more important in keeping a male from studying to be a secretary. They perceived attitudes of family members other than fathers and mothers and attitudes of school administrators would be important in keeping a female from studying automotive mechanics. Their decision to enter their current program of vocational studies was more influenced by their brothers and less influenced by their mothers and female friends. Fewer of the nontraditional females were working part-time and they reported their high school grades somewhat lower than did the traditional group. They also perceived a less positive relationship between their current studies and their work directly after high school.

Career Maturity Attitudes

How did the traditional and nontraditional students compare on attitudes of career maturity?

The attitudinal scale of Crites' Career Maturity Inventory was used to assess the level of maturity toward vocational choices expressed by vocational students enrolled in both traditional and nontraditional courses of study in vocational education. In this analysis, sex was considered as an interacting variable; consequently, a 2x2 factorial analysis of variance statistical model was employed for data analysis.

This analysis resulted in a comparison of the vocational maturity attitudes of traditional and nontraditional students, male and female students regardless of program of study, and an interaction of sex and the program variable. Results of the factorial model are presented in Table 46.

Differences in Career Maturity of Traditional and Nontraditional Students. A significant difference in career maturity (.01 level) was indicated for the total group of traditional vocational students as compared with the total group of students enrolled in nontraditional vocational programs. As indicated in Table 47, the traditional students scored significantly higher on the attitudinal scale of the Career Maturity Inventory than did the nontraditional students.

Differences in Career Maturity in Male and Female Students. The factorial anova model in Table 46 also indicated a significant difference in career maturity attitudes associated with the sex variable. A study of adjusted means for males and females in Table 46 showed that females in the sample, as a whole, scored higher than males on this measure of career maturity. A significant (.05 level) classification x sex interaction, however, was also indicated for

Table 46

Factorial Analysis of Variance Model Comparing Career Maturity Attitudes for Traditional and Nontraditional Vocational Students

Source of Variation	MS	DF	F
Classification (traditional vs. nontraditional	2652.15	1	58.36**
Sex	502.58	1	11.96**
Classification x Sex	163.04	1	3.88*
Residual (Error)	42.02	637	

*Significant at .05 level
**Significant at .01 level.

Table 47

Comparison of Adjusted Means for Career Maturity Attitudes of Vocational Students

Groups	Adjusted Means
Classification	
Traditional Student	32.94
Nontraditional Student	28.69
Sex	
Male	29.91
Female	31.88
Classification x Sex[a]	
Nontraditional Female	27.25
Nontraditional Male	29.42
Traditional Male	31.70
Traditional Female	33.67

[a] TF>TM>NTM>NTF

explaining differences in career maturity attitudes of the traditional and nontraditional students in Table 46. When a Scheffe test was run as a post hoc test to compare adjusted means for the sex subgroups, it was found that while traditional males and traditional females scored higher than did both groups of nontraditional subjects, the nontraditional males scored significantly higher (.05 level) on career maturity than did the nontraditional females. Means for these subgroups are given in Table 47.

Attitudes Toward Appropriate Vocational Programs for Both Sexes

How did attitudes of traditional and nontraditional students compare regarding the appropriateness of vocational programs for study by males and females?

A 2x2 factorial analysis of variance model was used to compare the attitudes of traditional and nontraditional students relative to the appropriateness of vocational programs for study by both males and females. Classification of students (traditional vs. nontraditional) and their sex were considered as independent variables. Responses to the two subscales of the Career Suitability Index measuring bias in attitudes toward the overall appropriateness of 22 vocational areas of study for males and females, respectively, were the dependent variables. Results of this analysis are given in Table 48.

Relative to the suitability of all vocational programs studied for males, significant differences (.01 level) were noted for the two main effects and for their interaction on the factorial model. By studying adjusted means given in Table 49, it was observed that

Table 48

Factorial Models Comparing Attitudes of Traditional and Nontraditional Vocational Students Toward Suitability of Vocational Programs for Study by Both Males and Females

Career Suitability	Classification Traditional/ Nontraditional MS	df	F	Sex MS	df	F	Classification x Sex MS	df	F	Error MS
Males	107.72	1	13.58**	268.19	1	33.81**	111.08	1	14.00**	7.93
Females	238.55	1	17.30**	59.77	1	4.33*	112.05	1	8.12*	13.79

*Significant at .05 level
**Significant at .01 level.

Table 49

Adjusted Means for Traditional and Nontraditional Students on Career Suitability Attitudinal Scales

Groups	Adjusted Means CSI Male[a]	CSI Female[b]
Classification		
Traditional students	5.26	7.17
Nontraditional students	4.42	5.84
Sex		
Males	5.79	7.04
Females	4.35	6.36
Classification x Sex		
Nontraditional males	3.51	5.41
Traditional males	4.35	6.74
Nontraditional females	4.97	7.42
Traditional females	5.79	6.09

[a]On CSI Male Scale TF>NTF = TM>NTM

[b]On CSI Female Scale NTF>TM = TF>NTM

135

traditional students were more biased toward males studying in all vocational programs listed in the CSI. Males, as a group, were also more biased than were the females, toward males studying in all vocational programs listed. When means for subgroups were compared through use of the Scheffe test, however, it was found that traditional female students held more bias than any of the other subgroups toward males studying in all programs. As might be expected, nontraditional males were least biased in their attitudes toward the appropriateness of all areas for study for males. No significant differences in attitudes as measured by this instrument were discovered between nontraditional females and traditional males toward males studying in the areas listed on the CSI. Both of these groups, however, were significantly more biased against males in their attitudes than were nontraditional males.

Regarding the suitability of all career areas for study by females at the high school level, as noted in Tables 48 and 49, traditional students, again, were more biased than nontraditional students. Males were also more biased than females against female high school students studying in all areas listed on the CSI. A significant interaction in means for subgroups was also discovered relative to the suitability of all career areas for study by females. When means for the four sex x classification subgroups were compared in the Scheffe test, nontraditional females expressed the most bias in attitudes. No differences were found in attitudes of traditional females and nontraditional females toward females studying in all areas of vocational education, but these two groups were more biased on this criterion than were the nontraditional males.

Attitudes Toward Nontraditional Work Roles (CWS)

How did the attitudes of traditional and nontraditional students compare relative to nontraditional work roles for men and women?

An incomplete 2x2x2 factorial analysis of variance model was employed to compare the attitudes of vocational students toward men and women working in nontraditional occupations, as measured by the Characteristics of Workers Survey. The main effects considered were classification (traditional vs. nontraditional), sex and race. Interactions of classification x sex and classification x race were also considered. Dependent variables were subjects' responses to the 10 subscales of the Characteristics of Workers Survey. Table 50 depicts the results from this analysis.

Significant differences associated with six subscales relative to classification, eight subscales relative to sex and six subscales relative to race were discovered. Only one significant difference was found associated with the interaction of classification x sex analysis and none were observed associated with the interaction of classification x sex.

Attitudes of Traditional vs. Nontraditional Students. In Table 50, it was noted that the two groups differed in their attitudes toward men working as receptionists and toward women working as airline pilots, auto mechanics and welders. The traditional and nontraditional groups also differed in their views of the masculinity of nontraditional male workers and in their views of the overall competency of men and women holding nontraditional jobs. (Table 51).

Table 50

Factorial Analysis of Variance Models Showing Differences in Students' Attitudes Toward Nontraditional Work Roles

Criterion Variables	Main Effects: Class Traditional/ Nontraditional MS	df	F	Sex MS	df	F	Race MS	df	F	Interactions: Class x Sex MS	df	F	Class x Race MS	df	F	Error MS	df
NTM Work Role (Receptionist)	12.41	1	7.97**	21.36	1	13.71**	70.31	1	45.15**	2.12	1	1.36	1.45	1	.93	1.56	633
NTM Work Role (Nurse)	1.61	1	.75	23.84	1	11.09**	22.65	1	10.53**	1.10	1	.51	.02	1	.01	2.25	633
NTF Work Role (Airline Pilot)	19.51	1	10.17**	23.73	1	12.38**	1.64	1	1.86	1.24	1	.65	.92	1	.48	1.92	633
NTF Work Role (Auto mechanic)	12.12	1	6.40**	10.92	1	5.77*	.01	1	1.00	2.06	1	1.08	3.66	1	1.93	1.89	633
NTM Work Role (Day Care Aide)	3.02	1	2.05	48.15	1	32.66**	47.78**	1	32.41**	.09	1	.05	.62	1	.43	1.47	633
NTF Work Role (Welder)	19.04	1	14.82**	19.31	1	15.05**	19.15	1	14.90**	.05	1	.04	3.81	1	2.97	1.29	633
NTF Femininity Scale	1.56	1	1.57	1.28	1	1.29	17.82	1	17.98**	.80	1	.81	.02	1	.02	.99	633
NTM/NTF Self-Control Scale	1.15	1	1.19	9.96	1	10.31**	37.69	1	39.03	3.88	1	4.02*	.53	1	.55	.97	633
NTM Masculinity Scale	9.55	1	4.01*	1.08	1	.46	25.23	1	10.60**	.39	1	.17	.31	1	.13	2.38	633
NTM/NTF Competency Scale	5.65	1	3.76*	42.01	1	28.22**	.41	1	.27	.12	1	.08	2.65	1	1.76	1.50	633

*Significant at .05 level
**Significant at .01 level.

Table 51

Adjusted Means of Traditional and Nontraditional Students' Attitudes Toward Nontraditional Work Roles

Criterion Variables	Adjusted Means	
	Traditional Students	Nontraditional Students
NTM Work Role (Receptionist)	4.73	5.02
NTM Work Role (Nurse)	4.32	4.44
NTF Work Role (Airline Pilot)	4.71	5.11
NTF Work Role (Auto Mechanic)	4.75	5.06
NTM Work Role (Day Care Aide)	4.65	4.81
NTF Work Role (Welder)	4.89	5.28
NTF Femininity Scale	2.89	2.78
NTM/NTF Self-Control Scale	2.72	2.62
NTM Masculinity Scale	4.31	5.59
NTM/NTF Competency Scale	4.82	5.03

On all of the above criteria where differences were indicated, as noted in Table 50, the nontraditional group of subjects had a more positive attitude toward individuals working in nontraditional jobs than did the traditional group of students.

Attitudes of Male and Female Students. As noted in Table 52, means for females were higher (more positive) than were those for males on the six subscales measuring attitudes toward nontraditional workers in the six work roles featured in the CWS. The females also rated the competency of these workers higher than did the male subjects. Females, however, rated the self control of nontraditional workers lower than did the males. No differences toward masculinity traits for nontraditional males and femininity traits for nontraditional females were shown between the male and female groups of vocational students, as indicated by data in Table 50.

Attitudes of Black and White Students. Adjusted means on the CWS subscales for black and white groups of vocational students are given in Table 53. All six subscales showing significant differences in attitudes between the two race groups, except for the femininity scale for nontraditional females, showed that black students have more positive attitudes than white students toward men and women working in nontraditional jobs. Black students were more positive about males working in nontraditional roles as receptionists, nurses and as day care aides. They also expressed more positive attitudes about women working as welders. They saw nontraditional females as more feminine, but they saw nontraditional males as less masculine

Table 52

Adjusted Means for Male and Female Vocational Students on Attitudes Toward Nontraditional Work Roles

Criterion Variables	Adjusted Means	
	Males	Females
NTM Work Role (Receptionist)	4.58	4.99
NTM Work Role (Nurse)	4.10	4.53
NTF Work Role (Airline Pilot)	4.61	5.04
NTF Work Role (Auto Mechanic)	4.70	4.99
NTM Work Role (Day Care Aide)	4.33	4.94
NTF Work Role (Welder)	4.81	5.20
NTF Femininity Scale	2.80	2.90
NTM/NTF Self-Control Scale	2.76	2.58
NTM Masculinity Scale	6.09	4.40
NTM/NTF Competency Scale	4.53	5.11

Table 53

Adjusted Means for Black and White Students' Attitudes Toward Nontraditional Work Roles

Criterion Variables	Adjusted Means Black	White
NTM Work Role (Receptionist)	5.12	4.40
NTM Work Role (Nurse)	4.53	4.12
NTF Work Role (Airline Pilot)	4.92	4.81
NTF Work Role (Auto Mechanic)	4.88	4.88
NTM Work Role (Day Care Aide)	4.95	4.36
NTF Work Role (Welder)	5.20	4.83
NTF Femininity Scale	2.70	3.06
NTM/NTF Self-Control Scale	2.48	3.00
NTM Masculinity Scale	4.26	4.17
NTM/NTF Competency Scale	4.93	6.88

than did their white counterparts.

Interaction of Classification x Sex. On the self-control scale, a significant interaction was indicated for the classification (traditional vs. nontraditional) x sex analysis. Table 54 illustrates the adjusted means for all sex subgroups on their responses to the subscales of the CWS. When the Scheffe test was computed for adjusted means of subgroups on the self-control scale, it was found that traditional females rated nontraditional workers as having significantly higher (.01 level) self-control than did the other three subgroups. No differences were observed in the attitudes of traditional males, nontraditional males and nontraditional females on this scale.

Interaction of Classification x Race Groups. As illustrated in the analysis of variance model in Table 50, no significant interactions in classification x race subgroups were discovered for explaining variance associated with the vocational students' attitudes toward nontraditional work roles for men and women.

Predicting Attitudes of Students Toward Suitability of Areas For Study by Males and Females

What variables in the backgrounds of the students were associated with bias in their attitudes toward all vocational studies being suitable for both males and females?

Separate stepwise multiple regression analyses were employed for determining the best combination of background variables and career influences, as measured by the Vocational Student Background Survey, associated with bias in students' attitudes toward the suitability

Table 54

Adjusted Means for Attitudes Toward Nontraditional Work Roles Held by Traditional Males, Nontraditional Males, Traditional Females and Nontraditional Females

Criterion Variables	Adjusted Means			
	Nontraditional Male	Traditional Male	Nontraditional Female	Tradition Female
NTM Work Role (Receptionist)	5.34	4.99	4.85	4.15
NTM Work Role (Nurse)	4.66	4.44	4.34	3.99
NTF Work Role (Airline Pilot)	5.20	4.75	5.28	4.53
NTF Work Role (Auto Mechanic)	5.04	4.79	5.38	4.62
NTM Work Role (Day Care Aide)	5.11	4.83	4.65	4.17
NTF Work Role (Welder)	5.45	5.07	5.37	4.54
NTF Femininity Scale	2.66	2.75	2.96	3.13
NTF/NTF Self-Control Scale[a]	2.38	2.53	2.82	3.10
NTM Masculinity Scale	4.71	4.52	4.39	4.04
NTM/NTF Competency Scale	5.10	4.86	5.40	4.61

[a] TF>NTM = NTF = TM

of all vocational programs for study by either males or females. Results of these analyses were useful in answering the first part of the fifth research question in this study.

Bias Against Males. Data in Table 55 summarize the relationship of the best set of predictor variables to bias in attitudes against males studying in all programs in vocational education listed in the Career Suitability Index. This table lists only those variables which, at the point of their entry into the stepwise regression equation explained a significant amount of the total variance in responses to the attitudinal scale.

A predictor set of seven variables was found to have a multiple correlation of .3229 and to explain only 10.4% of the variance in the vocational students' attitudes toward males studying in all vocational programs. Bias in attitudes toward males was associated primarily with white students studying in traditional programs. Those who planned to take additional training in vocational education at the postsecondary level were less biased toward males studying in all areas. Those who claimed to choose their specific programs because of employers' influence were more biased, as were those who rated parent encouragement higher as a factor influencing their decision to elect their particular program of study. Students with more attitudinal bias against nonrestricted enrollments for males in all areas also saw the attitudes of teachers and family members, other than parents, as less influential in the decision of males to enter nontraditional careers.

The students more biased against males electing all programs of study, then, were those planning to go to work immediately

Table 55

Variables Predicting Bias in Vocational Students' Attitudes Toward Males Studying in all Vocational Programs

Predictor Variables	Multiple R	R^2	Simple r	F to Enter
Group (Traditional vs. Nontraditional)	.2312	.0534	.23	19.79**
Plans to Take Postsecondary Vocational Training	.2597	.0674	-.10	7.84**
Influence of Employer on Choice of Study Area	.2766	.0765	.11	5.41**
Perceived Attitudes of Other Family Members Toward Nontraditional Study Program for Males	.2826	.0833	-.06	9.92**
Perceived Attitudes of Teachers Toward Nontraditional Male Study Programs	.3008	.0905	-.03	4.87*
Race (black vs. white)	.3121	.0974	.15	4.46*
Elected Vocational Program Because of Family Encouragement	.3229	.1043	.09	4.74*

*Significant at .05 level.
**Significant at .01 level.

after graduation. Their own vocational choices were dominated by perceived attitudes of parents and potential employers.

Bias Against Females. The relationship of background variables and career influences to bias in students' attitudes concerning the suitability of all vocational programs for study by females in high school is depicted in Table 56. Seven variables from the VSBS contributed significantly to explaining bias in the students' attitudes. The best predictor of bias against females was the importance which students gave as a reason for entering their specific vocational program as "the work would be different, challenging and rewarding," rather than a more extrinsic reason. Students' responses on this variable correlated negatively with their bias in attitudes as to the appropriateness of all vocational areas for study by women. In the predictor set, it was also indicated that the traditional group of students, as a whole appeared more biased toward the females. Students who were more opposed to women studying in all areas also saw the influence of administrators as less restricting and the influence of family members as more restricting to the entry of males into nontraditional work areas. Students with more bias also rated the influence of having friends in the program as more influential in their decision to study in a particular area. Those with more bias toward women studying in all areas were more influenced by brothers and fewer of these individuals had fathers living in the home.

Again, students with more bias against females were those whose career influences were perceived to be more dominated by home influences than by school influences.

Table 56

Variables Predicting Bias in Vocational Students' Attitudes Toward Females Studying in All Vocational Areas

Predictor Variables	Multiple R	R^2	Simple r	F
Entered Vocational Program Because Work Would be Different, Challenging, Rewarding	.2072	.0429	-.21	15.02**
Group (Nontraditional vs. Traditional)	.2747	.0755	.20	26.81**
Perceived Attitudes of School Administrators as Important in Restricting Males from Nontraditional Studies	.2924	.0855	-.09	13.91**
Perceived Attitudes of Other Family Members as Important in Restricting Males from Nontraditional Studies	.3140	.0986	.07	10.86**
Entered Vocational Program Because Most of Friends Were There	.3263	.1066	.08	4.70*
Influence of Brother Toward Entering Specific Vocational Studies	.3353	.1125	.06	7.99**
Father Living at Home	.3440	.1183	-.06	5.77*

*Significant at .05 level
**Significant at .01 level.

Predicting Students' Attitudes Toward Nontraditional Work Roles

In reference to the second part of the fifth research question, four separate canonical correlation models were used for identifying the set of traits for vocational students identified with their attitudes toward men and women working in nontraditional jobs. Separate multivariate correlations were computed for each of the traditional female, nontraditional female, traditional male and nontraditional male groups, respectively. These four subgroups had been demonstrated in preliminary studies (Walker and Handley, 1978), to have wide differences in attitudes toward nontraditional workers, as assessed by the Characteristics of Workers Survey.

Traditional Females. As observed in Table 57, three significant canonical relationships explaining 55.5%, 42.6%, and 39.7% of the common variance, respectively, were derived when the traditional females' background traits and career influences were correlated with their attitudes toward nontraditional work roles for men and women.

In the first factor, as shown in Table 57, the traditional females' attitudes toward women workers in specific nontraditional work roles did not load heavily. This group, however, rated nontraditional females as more "feminine." They also had more positive attitudes of a man working as a day care aide. These attitudes were expressed by individuals who recognized the influence of male friends upon their own choice of vocational programs and felt that attitudes of school administrators would be influential in restricting both male and female students from entering nontraditional careers, as

Table 57

Variables Predicting Traditional Female Students' Attitudes Toward Nontraditional Work Roles

Variables[a]	Canonical Roots I	II	III
Predictor Set			
Race (black vs. white)	-.17	.07	(-.45)
High School Grades Earned	.07	(.40)	-.03
Mothers' Influence on Vocational Study	.08	.06	(.37)
Influence of Female Friends on Vocational Study	.18	.05	(.34)
Influence of Male Friends on Vocational Study	(.36)	-.04	.06
Influence of Regular Teachers on Vocational Study	.21	-.02	(.35)
Influence of Employer on Vocational Study	.05	-.02	(.33)
Chose Vocational Area Because it "Sounded Interesting"	-.03	(.33)	.14
Influence Attitudes Mother Toward NTF Work Role	-.26	.07	(.35)
Influence Attitudes Father Toward NTF Work Roles	-.25	.21	(.31)
Influence Attitudes Other Family Toward NTF Studies	-.26	.17	(.34)
Influence Attitudes School Administrators Toward NTF Studies	(-.31)	-.12	.20
Influence Attitudes Mother Toward NTM Work Role	-.18	.07	(.40)
Influence Attitudes Regular Teachers Toward NTM Studies	(-.35)	.02	.15
Influence Attitudes School Administrators Toward NTM Studies	(-.30)	.02	.06
Criterion Set			
NTM Work Role (Receptionist)	.11	(.33)	(.48)
NTF Work Role (Auto Mechanic)	.12	.13	(.54)
NTM Work Role (Day Care Aide)	(.36)	(.47)	(.57)
NTF Work Role (Welder)	-.16	-.16	(.40)
NTF Femininity Scale	(.37)	.27	(-.50)
NTM/NTF Self-Control Scale	.03	.05	(-.68)
NTM/NTF Competency Scale	-.26	(.41)	.13
Canonical Roots	.5550	.4257	.3866
R	.7450	.6524	.6218
Chi Square	121.44	83.18	73.32
df	58	56	54
Probability	.001	.012	.046

[a]Variables listed are those loading .30 or more with significant canonical factors.

would the attitudes of regular teachers be restrictive to males entering nontraditional jobs.

The second factor described a group of traditional females' positive attitudes toward nontraditional males. Traditional female students who felt more positive about men working in nontraditional jobs were those who earned lower grades in high school and chose their vocational program of study because it "sounded interesting."

The third factor described an attitudinal relationship among traditional females who generally expressed positive attitudes toward nontraditional workers, but who also felt that nontraditional females were less feminine and that all nontraditional workers had less self control. Subjects with these beliefs tended to be black. They also recognized the influence of both parents, female friends, regular teachers and employers on their own choice of vocational study at the high school level. These subjects who rated nontraditional females as less feminine also saw the attitude of the mother and other family members (besides father) to be influential in preventing females from entering nontraditional vocations. These students also believed mothers to be more influential in preventing boys from entering nontraditional occupations.

Nontraditional Females. Only five variables measured by the Vocational Student Background Survey weighted .30 or more with the two significant canonical factors derived in the study of nontraditional female students' attitudes toward nontraditional work roles, as illustrated in Table 58.

Table 58

Predicting Nontraditional Female Students' Attitudes Toward Nontraditional Work Roles

Variables	Canonical Roots I	II
Predictor Variables		
Race (Black vs. White)	.07	(.40)
High School Grades Earned	.19	(-.35)
Influence Male Friends on Vocational Study	.08	(.35)
Influence Attitudes Male Friends Toward NTM Work Role	(.32)	.05
Influence Attitudes Employer Toward NTF Work Role	-.13	(.30)
Criterion Variables		
NTM Work Role (Nurse)	(.32)	.02
NTF Work Role (Airline Pilot)	.25	(.35)
NTF Work Role (Auto Mechanic)	-.20	(.66)
NTM Work Role (Day Care Aide)	(.44)	.03
NTF Work Role (Welder)	(-.30)	(.37)
NTF Femininity Scale	(.35)	(.42)
NTM/NTF Competency Scale	.09	(.58)
Roots ((R^2)	.4740	.3918
R	.6885	62.59
Chi Square	125.92	97.545
df	58	56
Probability	.001	.001

The first factor which accounted for 47.4% of the variance common with the background variables and the attitudes of nontraditional females appeared to describe those who were more negative about females working as welders. Nevertheless, this factor depicted a positive rating on the femininity scale for nontraditional females. The only background variable which loaded .30 or more with this set of attitudes was the influence of attitudes of male friends seen by these subjects which would inhibit a woman from entering a nontraditional job.

The second factor, explaining 39.2% of the common variance, appeared to characterize positive attitudes toward nontraditional female work roles and an attitude of competency toward both male and female nontraditional workers. Nontraditional females who expressed these attitudes were generally white, made lower grades in high school and recognized the influence of male friends and employers as significant in their own choice of vocational studies. Similar to the first factor, these positive attitudes toward nontraditional female workers also included a higher rating for them on the femininity scale.

Traditional Males. Two significant roots, as shown in Table 59, were derived from the canonical correlation between background variables and career influences on traditional male high school students and their attitudes toward nontraditional work roles for men and women. The first factor expresses positive attitudes toward all three nontraditional female work roles featured in the CWS (R^2=.467). This relationship, however, described nontraditional female workers

Table 59

Predicting Traditional Male Students' Attitudes Toward Nontraditional Work Roles

Variables[a]	Canonical Roots I	II
Predictor Variables		
Race	-.23	(-.55)
Influence Future on Vocational Study	(.32)	.15
Influence Male Friends on Vocational Study	(.32)	.13
Influence Attitudes Employers Toward NTM Work Roles	.10	(.30)
Criterion Variables		
NTM Work Role (Receptionist)	.03	(.84)
NTM Work Role (Nurse)	.16	(.39)
NTF Work Role (Airline Pilot)	(.39)	-.01
NTM Work Role (Day Care Aide)	.08	(.49)
NTF Work Role (Welder)	(.73)	.29
NTF Femininity Scale	(-.31)	(-.32)
NTM/NTF Self-Control Scale	(-.57)	.22
NTM Masculinity Scale	.10	(.69)
Roots (R^2)	.4674	.4136
R	.6836	.6432
Chi Square	101.44	85.93
df	58	56
Probability	.001	.001

[a]Variables listed in the table are those loading .30 or more with significant canonical roots.

as less feminine. Race was the only variable from the Vocational Student Background Survey to load .30 or more on this factor. As inferred earlier, blacks among the traditional male students rated the nontraditional male work roles more positively.

Nontraditional Males. One significant canonical root (See Table 60) was isolated which depicted 63.9% of the variance in nontraditional males' attitudes toward nontraditional work roles to be common with variances in their background in career influences. This factor described a set of positive attitudes toward males working as receptionists and toward the masculinity of nontraditional male workers. At the same time, however, the dominant set of attitudinal measures also depicted a less feminine view of nontraditional female workers and less control for all nontraditional workers. Individual traits associated with these attitudes were recognition of the influence of counselors on their decision to study in their particular program of vocational education and the recognition they chose their area of study because of the desire to prepare for a job away from home. Attitudes described in this factor were also related to the students' choice of a career study area influenced by their parents' occupations. Nontraditional males with these attitudes also felt that attitudes of counselors and fathers were significant factors in determining whether or not males entered a nontraditional work role.

Summary of Interactions of Variables

These data illustrate a complex interaction of career influences to be associated with students' attitudes toward nontraditional jobs. In all grups, students' attitudes were predicted with

Table 60

Variables Predicting Nontraditional Male Students' Attitudes Toward Nontraditional Work Roles

Variables[a]	Canonical Root I
Predictor Variables	
Influence Counselor on vocational study	(.61)
Chose Study Areas to train for job away from home	(.61)
Chose Study Area because of parents' occupation	(.34)
Influence attitudes father toward NTM Studies	(.43)
Influence attitudes counselors toward NTM studies	(.35)
Criterion Variables	
NTM Work Role (Receptionist)	(.40)
NTF Femininity Scale	(-.78)
NTM/NTF Self-Control Scale	(-.38)
NTM Masculinity Scale	(.53)
Canonical Root (R^2)	.6391
R	.7994
Chi Square	36.69
df	14
Probability	.001

[a]Variables listed in table are those loading .30 or more with significant canonical root.

high levels of confidence on the basis of their self reported career influences. Different sets of background variables, however, were predictors of attitudes for traditional males, nontraditional males, traditional females and nontraditional females.

Of special interest were the different patterns of variables associated with the vocational students' rating of "masculinity" for nontraditional males and "femininity" for nontraditional females. The factor for nontraditional males depicted a looking toward more masculinity for themselves and toward less femininity for nontraditional females. Nontraditional girls who felt more feminine were those who valued the influence of male friends on their career decisions. These relationships, though difficult to interpret, depict indirectly the conflict that may be involved in establishing self identity among high school students.

Relative Influence of Variables on Students' Choice of Programs

What is the relative influence of all student variables studied in differentiating between students' choice of traditional or nontraditional programs of study?

To answer this sixth research question, stepwise discriminant analysis models were used to determine the relative influence of significant others, personal attitudes and socioeconomic factors in predicting whether students enrolled in traditional or nontraditional programs of vocational study at the high school level. A separate analysis was conducted for males and females.

In this series of analyses, the type of program in which the students were enrolled was the dependent variable. Fifty-six

variables assessed by students' responses to the Vocational Background Survey, Career Maturity Inventory, the Career Suitability Index and the Characteristics of Workers Survey were considered as potential predictor variables.

Traditional and Nontraditional Males. Variables which contributed significantly to the discriminant function differentiating between males pursuing traditional and nontraditional areas of vocational study are given in Table 61. The one discriminant function which emerged when these variables were considered yielded a multiple correlation coefficient of .565 and a Wilks lambda coefficient of .6810 (equivalent to a chi square of 86.64, df 8), significant at the .001 level. Group means for these variables are given in Table 62.

As given in Table 61, eight background and attitudinal variables discriminated significantly between the traditional and nontraditional male groups. The best discriminator was the subjects' attitudes as to the appropriateness of all vocational curriculum areas for study by males. The traditional group indicated more bias on this criterion as measured by the CSI. In addition, as contrasted with the traditional male group, the nontraditional male students rated counselors and female friends higher as significant others in influencing their decision to study in career programs considered a typical for their sex. They rated the influence of brothers lower than did the traditional group. Nontraditional males perceived the influence of fathers' attitudes as more important in restricting females from choosing nontraditional work roles and the influence of counselors more important in restricting males from working in nontraditional jobs. The nontraditional males also viewed the work role

Table 61

Attitudinal and Background Variables Discriminating Between Traditional and Nontraditional Males

Variable Entered	F to Enter	Wilks Lambda	Rao's V
Bias/Career Suitability - Males	26.94**	.8964	26.94
Counselors' Influence on Choice of Study	9.50**	.8611	37.58
Chose Area of Study because of Local Job Opportunities	9.87**	.8258	49.15
Attitudes of Father Toward NTF Studies	8.70**	.7956	59.87
Brothers' Influence on Choice of Study	5.13**	.7781	66.43
Female Friends' Influence on Choosing Study	8.34**	.7500	77.38
NTM Work Role (Receptionist)	6.33**	.7303	86.04
Attitudes of Counselors Toward NTM Studies	3.35*	.7196	90.78

*Significant at .05 level.
**Significant at .01 level.

Table 62

Means for Traditional Males and Nontraditional Males for Discriminating Variable Set

Variables	Traditional Males $\bar{X}$	Nontraditional Males $\bar{X}$
Bias/Career Suitability - Males	6.45	4.05
Counselors' Influence on Choice of Study	2.75	3.48
Chose Area of Study Because of Local Job Opportunities	4.09	3.48
Attitudes of Fathers Toward NTF Studies	3.65	3.09
Brothers' Influence on Choice of Study	2.87	2.45
Female Friends' Influence on Choice of Study	2.56	2.15
NTM Work Role (Receptionist)	4.28	5.12
Attitudes of Counselors Toward NTM Studies	2.83	3.20

of males as receptionists more favorably than did their traditional counterparts and were less attracted to their program of study because of local job opportunities in that area.

As reported in Table 63, a correct classification was made for 81.28% of the male subjects on the basis of the predictor variable set; i.e., the derived discriminant function classified over four-fifths of the subjects into the "traditional" or "nontraditional" groups on the basis of these identified traits.

Traditional and Nontraditional Females. A multiple correlation coefficient of .565 was computed when the set of predictor variables was employed to discriminate between the traditional and nontraditional students. Table 64 illustrates that 11 variables contributed significantly to the discriminant function. From means listed in Table 65, it was observed that nontraditional females, as compared to those studying in traditional programs, reflected less career maturity in attitudes measured on the Career Maturity Inventory. They also were less motivated to select their vocational programs because of the desire to learn skills for later employment and because of good future employment opportunities. The nontraditional females, also, had more bias toward females studying in all vocational programs.

Significant others influencing their choice of study areas were brothers and school administrators. Significant others, as rated by the traditional females were male friends, regular teachers and mothers. Fewer of the nontraditional females, also, rated the relationship between their current studies and anticipated future jobs lower than did the traditional group.

Table 63

Results from Classification of Traditional and Nontraditional Males into Groups on Basis of Attitudes and Career Influences

Active Groups	N	Predicted Group Membership[a] (NTM) N	%	(TM) N	%
Nontraditional Males (NTM)	44	37	84.1	7	15.9
Traditional Males (TM)	191	37	19.4	154	80.6

[a]Percentage of overall cases correctly classified: 81.28%

Table 64

Attitudinal and Background Variables Discriminating Between Traditional and Nontraditional Females

Variables Entered	E to Enter	Wilks Lambda	Rao's V
Career Maturity Attitudes	57.33**	.8754	57.53
Chose Area of Study to Learn Skills for Later Employment	43.12**	.7906	107.00
Bias/Career Suitability - Female	18.58**	.7557	130.60
Study Program Related to Expected Job in Future	14.45**	.7294	149.89
School Administrators' Influence on Choice of Study Area	13.56**	.7055	168.67
Male Friends' Influence on Choice of Study Area	14.10**	.6814	188.91
Mothers' Influence on Choice of Study Area	12.46**	.6607	207.44
Brothers' Influence on Choice of Study Area	8.53**	.6468	220.61
Regular Teachers' Influence on Choice of Study Area	8.34**	.6335	233.77
Having an Active Job	7.31**	.6219	245.88
Chose Area of Study Because of Good Salary Opportunities	3.32*	.6177	250.05

*Significant at .05 level
**Significant at .01 level

Table 65

Means for Traditional and Nontraditional Females for Discriminating Variables

Variables	Traditional Females $\bar{X}$	Nontraditional Females $\bar{X}$
Career Maturity Attitudes	34.01	29.15
Chose Area of Study to Learn Skills for Later Employment (yes=1;No=0)	.52	.20
Bias/Career Suitability - Female	5.61	6.82
Relationship of Study Program to Future Job	3.48	2.61
School Administrators' Influence on Choice of Study Area	2.42	3.01
Male Friends' Attitude Toward Choice of Study Area	3.89	3.15
Mothers' Influence on Choice of Study Area	4.00	3.42
Brothers' Influence on Choice of Study Area	2.16	2.58
Regular Teachers' Influence on Choice of Study Area	3.11	2.79
Having a Part-Time Job (yes=1;No=0)	.18	.06
Chose Area of Study Because of Good Salary Opportunities	4.11	3.32

When these 11 criteria were used to predict group membership, 81.32% of the female subjects were correctly classified according to whether their courses of study were considered traditional or nontraditional (see Table 66).

Relating Program Variables and Teacher Attitudes to Student Attitudes and Nontraditional Enrollments

The last phase of the data analysis procedures involved relating program variables planned by vocational educators to combat sex bias with students' attitudes and enrollment in nontraditional courses.

Teacher attitudes toward nontraditional studies and work were also correlated with student variables describing these same criteria to determine their direct relationship.

To answer the last research question and provide data for summarizing the entire study, teacher attitudes and all student variables considered throughout the study were considered as potential discriminant variables for differentiating between the students enrolled in traditional and nontraditional courses.

Program Variables Related to Students' Attitudes

Results from students' responses to the Career Suitability Index were correlated with the vocational center directors' assessment of the emphasis placed on program developments to eliminate sex bias from their programs. The program directors evaluated their schools' progress toward this goal according to 16 separate criteria listed in the Survey of Male-Female Enrollments in Secondary Vocational Programs (called Director's Survey). Higher ratings implied more

Table 66

Results from Classification of Traditional and Nontraditional Females into Groups on Basis of Attitudes and Career Influences

		Predicted Groups Membership[a]			
		NTF		TF	
	N	N	%	N	%
Nontraditional Females (NTF)	226	184	81.4	42	18.6
Traditional Females (TF)	180	34	18.9	146	81.6

[a]Percent of cases (overall) correctly classified: 81.32%.

emphasis as rated on these scales. The data were analyzed by computing Pearson product-moment correlations, since only 20 schools were involved in the study and, in this analysis, the schools were considered as subjects. Results of this analysis are given in Table 67.

Only four of the probable program practices listed in the Director's Survey for elimination of sex bias were found to be correlated (.05 level) with students' attitudes toward the suitability of all vocational programs for study by both males and females. These practices were: (1) employing counselors and teachers who understand the needs of nontraditional students; (2) holding open house for students to see nontraditional students in action; (3) advising students of preparation needed to work in nontraditional occupations; and (4) encouraging students to take vocational aptitude tests and other interest surveys. The correlations were negative, indicating less bias in students' attitudes in schools whose administrators felt their program gave more emphasis to these bias-reducing criteria. If administrators felt their schools had employed counselors and teachers who understood the needs of nontraditional students and, also, if the schools had encouraged students to take vocational aptitude tests, then, students in these schools expressed less bias toward the suitability of all vocational programs for study by both males and females. Students in schools which held open houses where nontraditional students could be observed at study exhibited less bias toward the suitability of all programs for study by females. If schools emphasized the advisement of students regarding the preparation needed for work in nontraditional areas, there also was an

Table 67

Relationship of Program Efforts to Eliminate Sex Bias to Students' Attitudes Regarding Suitability of All Vocational Areas for Study By Both Sexes (N=20)

Program Criteria	Bias/Career Suitability Males r	Females r
1. Use of role models for nontraditional workers	-.18	-.23
2. Screening instructional materials to insure removal of sex stereotypes	.05	-.29
3. Holding inservice workshops to reduce bias in recruitment and instruction	.12	-.23
4. Employing counselors and teachers who understand needs of nontraditional students	-.52**	-.43**
5. Advertising programs with full access to both sexes	-.15	-.29
6. Actively recruiting nontraditional students	-/13	-.10
7. Collecting and disseminating labor market data to assist students in career decision-making	-.28	.06
8. Providing same objective data on all occupations to all students (salary, projected growth, etc.)	.02	-.14
9. Holding open house for students to allow nontraditional students to be seen in action	-.15	-.43*
10. Informing students of reasons why they might consider nontraditional study programs	.03	-.14
11. Advising students of preparation needed in nontraditional fields	-.47*	-.17
12. Providing information to parents on all career programs, including nontraditional	-.12	-.17
13. Encouraging consultation between parents and school personnel to help students in career decision-making	-.11	.06
14. Grouping nontraditional students in same class sections	.17	-.04
15. Encouraging students, especially girls, to take more courses in math and science	.19	.00
16. Encouraging students to take vocational aptitude tests, interest inventories, etc.	-.37*	-.35*

*Significant at .05 level (correlation based on 20 schools: N=20)
**Significant at .01 level (correlation based on 20 schools: N=20).

accompanying lower bias in students' attitudes toward males working in all areas.

These data indicate that some school practices to eliminate sex bias in vocational programs, as assessed by their administrators, are related to the attitudes which their students hold toward both sexes studying in programs traditionally entered predominantly by one sex or the other.

Program Variables Related to Nontraditional Enrollments

The number of males and females who were enrolled in vocational courses classified as nontraditional, respectively, was divided by the total number of males and females studying in vocational programs in the school to secure a ratio of nontraditional enrollment. Two ratios, a nontraditional male ratio and a nontraditional female ratio, resulted. These statistics were then correlated with the vocational center directors' assessments of his schools' efforts to eliminate sex bias from programs according to the 16 criteria listed in the Director's Survey. Results of this analysis are reported in Table 68.

Only two criteria (1) encouraging students to take vocational aptitude tests and other interest inventories, and (2) grouping nontraditional students in the same class sections, were correlated with higher nontraditional enrollment ratios. The first practice was significantly correlated with higher nontraditional enrollment for both males and females. Higher enrollments for nontraditional females (but not males) was correlated with the amount of emphasis placed on grouping nontraditional students in the same class.

Table 68

Relationship of Program Efforts to Eliminate Sex Bias to Student Enrollments in Nontraditional Programs

Program Criteria	Ratio NT Student Enrollments / Total Enrollments NTM r	NTF r
1. Use of role models for nontraditional workers	.13	.28
2. Screening instructional materials to insure removal of sex stereotypes	.14	.26
3. Holding inservice workshops to reduce sex bias in recruitment and instruction	-.03	.18
4. Employing counselors and teachers who understand needs of nontraditional students	.05	.25
5. Advertising programs with full access to both sexes	.21	.15
6. Actively recruiting nontraditional students	.09	.06
7. Collecting and disseminating labor market data to assist students in career decision-making	-.22	.20
8. Providing same objective data on all occupations to all students (salary, projected growth, etc.)	-.14	.15
9. Holding open house for students to allow nontraditional students to be seen in action	.04	.12
10. Informing students of reasons why they might consider nontraditional study programs	.22	-.07
11. Advising students of preparation needed in nontraditional fields	-.31	..09
12. Providing information to parents on all career programs, including nontraditional	.06	.13
13. Encouraging consultation between parents and school personnel to help students in career decision-making	.19	.04
14. Grouping nontraditional students in same class sections	.01	.39*
15. Encouraging students, especially girls, to take more courses in math and science	-.07	.33
16. Encouraging students to take vocational aptitude tests, interest inventories, etc.	.41*	.39*

*Significant at .05 level (correlation based on 20 schools: N=20)

Since only three out of a possible 32 simple correlation coefficients were found to be statistically significant, these results were not conclusive; nevertheless, the positive correlations between the use of aptitude tests in schools and increased nontraditional enrollments warrants further study.

Relationship of Teacher and Student Attitudes

What relationship, if any, is there between the attitudes of vocational teachers and their students relative to students studying in nontraditional areas and toward men and women pursuing nontraditional jobs? This eighth research question in the study was investigated through the use of data derived from canonical correlations in which teacher attitudes were considered as one set of variables and student attitudes were considered as another set. Separate correlations were made for attitudes measured by the Career Suitability Index and the Characteristics of Workers Survey.

Career Suitability. A canonical correlation was computed relating attitudes of teachers and students regarding the suitability of all vocational areas for study by both males and females in high school programs. Two canonical correlations of .08 and .06, respectively, were derived and found to be not significant at the .05 level. This analysis, then, was not able to verify a significant relationship between teacher and student attitudes relative to these criteria as measured by the Career Suitability Index.

Characteristics of Nontraditional Workers. The canonical analysis yielded two relationships significant at the .05 level when the attitudes of students and teachers toward nontraditional workers

were correlated. These relationships were derived for attitudes measured by the semantic differential-type scales of the Characteristics of Workers Survey. Canonical correlation for the two roots, respectively were .29 and .24. Consequently, the two relationships collectively explained only about 14% of the common variance between teacher and student attitudinal sets. Multivariate statistical evaluations of these functions are given in Table 69. These data indicate a statistically significant relationship of low magnitude between the vocational teachers' attitudes and those of their students toward nontraditional workers.

Integration of Teacher and Student Variables Discriminating Between Traditional and Nontraditional Students

What is the best combination of teacher attitudes and student variables for differentiating between traditional and nontraditional students? To answer the last research question, all of the background variables and students' attitudes previously identified as discriminating between traditional and nontraditional vocational students were considered in a new discriminant set, along with all teacher attitudinal variables measured. This analysis allowed the investigators to determine the relative value of all these factors for differentiating between the career influences of the two groups of high school vocational students. Separate discriminant analyses were conducted for the male and female students subsamples.

Discriminant Variables for Nontraditional and Traditional Female Students. Table 70 lists the 16 attitudinal variables and career influences which discriminated between traditional and

Table 69

Relationship of Vocational Teacher and Student Attitudes Toward Nontraditional Workers

Factor No.	Eigenvalue	Canonical R	Wilks Lambda	DF	Chi Square
1	.0832	.2884	.7686	100	166.64**
2	.0568	.2383	.8384	81	110.97**

**Significant at .01 level.

Table 70

Overall Career Influencing Variables Discriminating Between Traditional and Nontraditional Vocational Female Students

Discriminating Variables	F to Enter[a]	Wilks Lambda	Standardized Discriminant Coefficient[b]
Teacher bias/Career suitability - females	61.78	.86	.55
Teacher bias/Career suitability - males	134.41	.63	-.45
Teacher attitudes/NTF work role (airline pilot)	29.92	.58	-.45
Teacher attitudes/NTF femininity	51.79	.51	-.21
Teacher attitudes/NTM work role (receptionist)	22.48	.48	-.48
Student attitudes/NTM work role (day care aide)	13.09	.46	-.04
Student attitudes/NTM-NTF competency	10.39	.44	-.50
Bias teacher attitudes/ Nontraditional work roles	19.12	.41	.29
Influence of brother on vocational area chosen	14.16	.40	-.41
Perceived attitude male friends/NTF work role	9.23	.38	-.09
Influence of regular teachers on vocational area	7.78	.37	-.09
Student bias/Career suitability - males	7.03	.36	.06
Relationship of part-time job to studies	7.28	.35	.15
Holding part-time job currently	5.32	.35	.05
Student career maturity attitudes	5.02	.34	.08
Student attitude/NTM self control	4.52	.33	.08

[a]Only variables making significant change (.01 level) were included in discriminant set.

[b]Negative functions load toward nontraditional groups.

nontraditional females when both teacher and student variables were included in the predictor set. All of these variables, when added stepwise to the discriminant function, explained a significant amount of the variance associated with students' assignment to career choice groups. The derived function produced a canonical correlation of .83 when predicting group membership for the female students. Over 94% of the female subjects could be correctly classified as studying in either nontraditional or traditional vocational programs on the basis of variables in this function.

As given in Table 70, seven of the variables in the discriminant set were teacher attitudes. Furthermore, the first five variables to enter the discriminant factor were teacher attitudinal variables. Five of the discriminant variables were student attitudes as assessed by the Career Suitability Index, the Characteristics of Workers Survey and the attitudinal scale of the Career Maturity Inventory. Three significant variables were related to the influence of significant others on the development of nontraditional careers and two variables were associated with part-time jobs.

In interpreting the standardized discriminant functions given in Table 70, the nontraditional female students, as compared to their traditional counterparts, were taught by teachers who had less biased attitudes toward the appropriateness of all vocational areas for study by both females and males at the high school level. The teachers of nontraditional females had more positive attitudes toward females working as airplane pilots and toward males working as receptionists. These teachers, as contrasted with the teachers of traditional females, saw nontraditional women workers as more

feminine. They also were less biased in their attitudes in general toward nontraditional work roles and lifestyles for both men and women.

In this analysis the nontraditional students, themselves, rated nontraditional workers (both male and female) as more competent and as having more self control. Their attitudes toward males working as day care aides were more positive than were those of their traditional female counterparts. Nontraditional females were also less biased toward the suitability of all vocational areas for study by males. However, they scored lower on measures of career maturity than did the traditional group.

Male friends were seen more important as significant others who might restrict females' entry into nontraditional jobs by nontraditional females than by traditional females. Nontraditional students claimed less influence from regular teachers and more influence from brothers in their decision to enter their specific area of vocational study than did traditional students.

Fewer of the nontraditional students had part-time jobs and, consequently, they saw a lower relationship between their current studies in vocational education and their part-time jobs than did the traditional female students.

Discriminant Variables for Nontraditional and Traditional Male Students. An overall canonical correlation of .91 was observed when the student and teacher variables were allowed to enter a stepwise-derived discriminant function to differentiate between the career influences of traditional and nontraditional male vocational students. As indicated in Table 71, fifteen variables contributed

Table 71

Overall Variables Discriminating Between Traditional and Nontraditional Male Vocational Students

Discriminating Variables	F to *Enter*[a]	Wilks *Lambda*	Standardized Discriminant *Factors*[b]
Teacher bias/Career Suitability - females	36.38	.87	1.28
Teacher attitude/NTM work role (day care aide)	29.45	.77	-1.81
Student bias/Career suitability - males	21.80	.70	.09
Teacher attitude/NTM work role (receptionist)	15.45	.66	-1.28
Teacher attitude/NTF work role (auto mechanic)	36.64	.57	-1.82
Teacher attitude/NTM Masculinity	40.54	.48	-1.32
Teacher attitude/NTM-NTF Self-Control	53.56	.39	.81
Teacher attitude/NTF Femininity	33.63	.34	.35
Teacher bias/Nontraditional work role (welder)	35.41	.27	-1.32
Teacher attitude/NTF work role (airline pilot)	25.89	.24	.50
Influence of regular teachers on vocational area	12.70	.23	- .09
Teacher bias/Career suitability - females	10.81	.22	- .21
Influence of brothers on vocational area	7.86	.21	.14
Teacher bias/Nontraditional lifestyles	6.45	.21	.10
Influence of female friends on vocational area	6.14	.19	- .09

[a]Only variables making significant change (.01 level) were included in discriminant set.

[b]Negative functions load toward nontraditional groups.

significantly (.01 level) to the overall discriminant function. The derived function was adequate for correctly classifying 98.3% of the male subjects into traditional and nontraditional groups on the basis of their attitudes, their personal variables and attitudes of their vocational teachers. Again, in this analysis, the larger portion of the variables in the discriminant factor were related to teacher attitudes regarding nontraditional work roles and studies.

The degree of influence of three groups of significant others, brothers, female friends and regular teachers, also served as significant discriminators, as did bias in the students' attitudes toward all vocational areas being suitable for study by males at the high school level.

As compared to teachers of traditional male students, the teachers of nontraditional male students had less bias toward both males and females studying in all vocational areas. They had more positive attitudes toward nontraditional work roles for males (day care aide, receptionist) and toward nontraditional female workers (auto mechanic, welder, airplane pilots). Teachers of these nontraditional males saw nontraditional male workers as more masculine and nontraditional female workers as more feminine. Teachers of nontraditional males viewed all nontraditional workers as having more self-control than did teachers of traditional students. Teachers of nontraditional males also had less bias toward nontraditional work roles in general and toward nontraditional lifestyles for both men and women.

The nontraditional students, themselves, had less bias toward the suitability of all areas of vocational study for males in high

school than did the traditional male subjects. Nontraditional males claimed female friends and regular teachers as more influential relative to their decision to study in their specific program, than did traditional males. The influence of brothers, however, in their choice of study was rated significantly lower by nontraditional males than by traditional males.

Independent Assessments of Discriminating Variable Sets

Data in Table 72 show the relative multiple correlations when perceived attitudes of significant others, socioeconomic factors, student attitudes and teacher attitudes regarding nontraditional study and work roles for both male and female students were employed as separate sets of discriminating variables differentiating between traditional and nontraditional males. Similar data are presented in Table 73 for the relative multivariate correlations of discriminant variables differentiating between traditional and nontraditional females. As noted on these two tables, the rank of these variables in differentiating between the two groups of subjects for both males and females, respectively, as determined by the magnitude of canonical correlation coefficients were teacher attitudes, the students own attitudes, attitudes of significant others as perceived by the students and socioeconomic factors (such as part-time jobs, need for immediate jobs after high school, anticipated salary differentials, marital plans, etc.).

These data confirm the basic assumptions of this study that the influence of significant others, attitudes of students, themselves, and attitudes of vocational educators are significant factors

Table 72

Relative Influence of Attitudes of Significant Others, Teachers' and Students' Attitudes and Socioeconomic Factors in Discriminating Between Traditional and Nontraditional Males

Variable Set	Canonical R	R^2
Perceived Attitudes of Significant Others	.47	.22
Socioeconomic Factors	.31	.10
Student Attitudes (Self)	.52	.27
Teacher Attitudes	.69	.48
Total Set	.91	.85

Table 73

Relative Influence of Attitudes of Significant Others, Teachers' and Students' Attitudes and Socioeconomic Factors in Discriminating Between Traditional and Nontraditional Females

Variable Set	Canonical R	R^2
Perceived Attitudes of Significant Others	.59	.35
Socioeconomic Factors	.25	.07
Student Attitudes (Self)	.64	.41
Teacher Attitudes	.67	.45
Total Set	.83	.69

for differentiating between groups of students electing traditional and nontraditional studies in vocational education programs while in high school.

V. SUMMARY, IMPLICATIONS AND RECOMMENDATIONS

The major objective of this research was to assess the relationship of attitudes held by vocational educators, influence of significant others, other career influencing factors and the attitudes of students, themselves, to students' enrollment in programs of vocational education considered either traditional or nontradition for their sex.

To accomplish this objective, characteristics and attitudes of both male and female students enrolled in nontraditional and traditional programs in 20 high school vocational complexes in Mississippi were studied. Attitudes and background characteristics of traditional and nontraditional youth were also studied.

Criterion variables for the student sample included 20 background factors and perceived career influences measured by the Vocational Student Background Inventory, 10 factors denoting attitudes toward nontraditional work roles for men and women on the Characteristics of Workers Survey, attitudes toward the suitability of all vocational programs for study by both sexes (Career Suitability Index) and attitudes of career maturity (Career Maturity Inventory). Educator variables studied included age, sex, race, level of educational training and length of teaching experience. In addition, bias in the educators' attitudes relative to appropriate sex roles for men and women in society was considered as a predictor of educators' attitudes toward appropriate vocational areas of study for males and

females and toward attitudes regarding nontraditional work roles in general. The influence of sixteen program variables developed by vocational centers to varying operational levels on the attitudes and enrollment of students in nontraditional classes was also determined.

Nine research questions probing within group relationships for educators and students, as well as between the two groups of subjects, were utilized for structuring the study. Data were analyzed through the use of a variety of univariate and multivariate statistical models.

Summary of Findings

Research findings are summarized as follows:

Educator Attitudes

1. Differences in attitudes of educators toward the suitability of vocational areas for study by both males and females was associated with educators' sex and educational levels, but not their age, race, or length of teaching experience. Women educators appeared more biased against females studying in all areas than were male educators. Also vocational educators with only bachelor's degrees appeared more biased against male students studying in all areas than were educators who had earned advanced degrees.

2. Differences in attitudes toward nontraditional work roles were associated with the educators' sex, race and educational levels. Again, women educators had less favorable attitudes toward nontraditional work roles than men. Generally, white educators were more biased against nontraditional work performances of both men and women, than were black educators. Educators with more advanced degrees,

again, expressed more positive attitudes toward men and women in nontraditional jobs.

3. Bias in teachers' attitudes toward sex roles in society was not associated with their attitudes regarding the suitability of vocational programs for study by both male and female students. How the educators felt about men and women's societal roles, however, was significantly related to attitudes which they expressed toward men and women working in nontraditional jobs. Those who had more positive opinions regarding equal roles for men and women in society also rated nontraditional work performances as being more competent.

4. Educators who had taught nontraditional students in their high school classes were more willing for all courses in vocational education to be open to both sexes, than were their counterparts who had not taught nontraditional students. Educators who had taught nontraditional students and still expressed less positive attitudes toward nontraditional students were generally white males.

Student Attitudes

1. Differing sets of attitudinal variables were found to be associated with nontraditional male, traditional male, nontraditional female and traditional female students, respectively. More attitudinal differences were found between females in traditional and nontraditional classes than were noted between traditional and nontraditional males. Nontraditional females differed from traditional females most in reasons given for entering their program of studies. The nontraditional students elected their specific vocational areas because "girls should enter them." In contrast, traditional females chose their programs so they could secure skills needed for

employment. As compared to traditional subjects, nontraditional females rated attitudes of family members (other than parents) and attitudes of school administrators as more influential in restricting girls from studying in nontraditional programs. The nontraditional girls rated the influence of male friends as less significant in their decision. Nontraditional girls were more influenced by brothers and traditional girls were more influenced by mothers in making their vocational choices. Also, fewer of the nontraditional girls worked part-time and more of them made lower grades in high school than did the traditional girls.

2. Nontraditional males, in comparison to traditional male students, entered their vocational studies later, during the last two years of high school, rather than in the ninth or tenth grades as did the others. Nontraditional males rated regular teachers, counselors and female friends more important as significant others influencing their choice of vocational study programs than did the traditional males. Traditional males, on the other hand, claimed more positively that the opportunity to prepare for jobs offering good salary opportunities was their major motivation for election of their courses of study. More than traditional males, the nontraditional male students perceived the influence of family members other than parents as being more important in keeping males from studying in nontraditional programs.

3. Relative to the suitability of all vocational areas for study by females, nontraditional students expressed less bias in their attitudes than did traditional students. Nontraditional females, however, were more biased toward girls studying in all programs, while

nontraditional males were less biased. The traditional males and females did not differ in their attitudes toward these criteria and were less positive in these attitudes than were the nontraditional males and were more positive than the nontraditional females.

4. Where differences in attitudes of students toward nontraditional work roles for men and women were indicated, nontraditional students were more positive and traditional students were less positive. Females, as a whole, were more positive toward nontraditional workers than were males, except in their ratings of "masculinity" for nontraditional male workers. Black students were more positive in their attitudes toward nontraditional work roles, except they rated nontraditional workers as having less self control than did the white students.

5. Attitudes expressed by nontraditional students toward career choices indicated that they had less career maturity than did the traditional students. The females, as a whole, scored higher on attitudinal measures of career maturity than did the males. The subgroup found to have less career maturity on the Career Maturity Inventory, however, was the nontraditional female group. No difference in career maturity was indicated for traditional males, traditional females and nontraditional males.

6. Different background and attitudinal factors were associated with bias in students' attitudes against all vocational programs being appropriate for males and females, respectively. Those more biased against males studying in all areas were traditional white students who did not plan to take postsecondary vocational training. The more biased students elected their own programs because of family

encouragement. They saw the roles of brothers and family members (other than parents) to be less important as significant others than did students who felt that more vocational programs were suitable for study by males. Those with more bias against females studying in all programs entered their own traditional studies because "friends were there," rather than because the work would be "different, challenging, and rewarding," the reason for choosing programs claimed by those who favored more programs for study by females. Fewer of those with less positive attitudes toward unlimited study by females had fathers living at home and more rated the influence of brothers as the significant others in their own choice of studies. Students who were biased against both male and female students, generally, had more bias against all programs being suitable for members of the opposite sex, than for their own sex; i.e., males felt that more programs should be open for males and females felt that more programs should be open for females.

7. Wide variances were found in the relationships between personal variables and attitudes of student sex subgroups toward nontraditional work roles for men and women. The most variability occurred in the attitudes of traditional females toward this set of variables; hence, more background variables were found to be associated with the attitudes of traditional females toward nontraditional work roles than for any other subgroups studied. Significant others for traditional females with less positive attitudes toward nontraditional work roles appeared to be male friends, female friends, regular teachers and employers (present and future). This group also perceived the influence of mothers, fathers and other family members

to be important in restricting females from electing nontraditional studies.

More nontraditional females with positive attitudes toward men and women working in nontraditional roles were black than white. They earned lower high school grades and valued the influence of potential employers more in their choices of studies. Nontraditional females with less positive attitudes toward nontraditional work roles were those who valued the influence of male friends on their choice of vocational studies.

Nontraditional males with more positive attitudes toward nontraditional work roles for men and women were generally black and recognized the influence of employers' attitudes relative to men pursuing nontraditional study programs.

Traditional males with positive attitudes toward nontraditional work roles for both sexes were those who recognized the influence of counselors on their own choices of study. They chose their programs because of their parents' occupations. They recognized the influence of counselors and fathers as significant others who could block the entry of males into nontraditional study programs. Traits associated with negative attitudes for traditional males toward nontraditional work roles were not identified.

8. When attitudes, background variables and career influences as perceived by the students, themselves, were considered as discriminant variables, 82% of the males and 81% of the females could be classified according to whether they elected traditional or nontraditional vocational programs of study in high school.

9. No significant relationship was established between students' attitudes toward the suitability of vocational areas for study by male and female students and their attitudes toward nontraditional work roles for men and women.

Relationship of Teacher and Student Attitudes

1. No significant relationship was found between the attitudes held by vocational teachers and students relative to the suitability of courses in vocational education for study by both males and females in high school. Significant relationships, however, were observed between the attitudes of teachers and students toward nontraditional work roles.

2. Program variables, such as encouraging students to take vocational interest surveys and aptitude tests, advising students of preparations needed in nontraditional fields, employing counselors and teachers who understood needs of nontraditional students and holding open houses featuring the work of nontraditional students (particularly females), were correlated with more positive attitudes of students toward the suitability of vocational areas for study by both sexes. Further, the use of aptitude tests and interest inventories and the practice of grouping nontraditional girls in the same sections were program variables also positively correlated with higher nontraditional student enrollments in the vocational centers.

Overall Relationship of All Variables to Group Differences

1. When attitudes of teachers were added to the discriminant set, along with student attitudes, background variables and career influences, over 94% of the female subjects and 98% of the male subjects

could be correctly classified by the multivariate set as having selected either traditional or nontraditional programs of vocational study. Teacher attitudinal variables, rather than those of students, entered the stepwise function first and tended to dominate the discriminant set for both sexes of students. These data inferred the relatively more powerful relationship of teacher attitudes for predicting group differences, as compared to other variables considered in this study. Teacher variables found to be the best discriminators of students' study programs were their attitudes toward nontraditional work roles for men and women.

2. In separate discriminant analyses, it was further discovered that the order of the predictor variables for discriminating between traditional and nontraditional students for both males and females was: teachers' attitudes toward nontraditional work and study roles, students' own attitudes for these same criteria, influence of significant others on vocational choices as perceived by students and other socioeconomic factors, such as having part-time jobs, preparation for jobs immediately after graduation and marital plans.

Implications of Study

Results of these research activities have implications for better understanding the dynamics of career development for youth interested in nontraditional work roles and for program development in vocational education to eliminate sex bias from the curriculum and the attitudes of students.

Career Development Theory

These data indicate that nontraditional female students in the sample were somewhat more immature in career development as outlined in the model by Ginzberg (1952) and Ginzberg and associates (1951). On the other hand, nontraditional males and both sex groups of traditional students appeared to have advanced to either the last phase of the tentative stage or even to the realistic stage of their career decision-making processes, stages considered appropriate for their age and educational training, according to Ginzberg.

That the nontraditional females were still in earlier phases of the tentative stages of career development was supported by their unrealistic views of future activities and their dependence on others regarding their choice of studies, as well as their general career immaturity. Though a majority of the nontraditional females had made "mostly C's and D's" in their high school work thus far, they still planned to attend four-year colleges after graduation from high school. They also scored lower on career maturity attitudes (CMI) than did any other group studied. The nontraditional girls gave lower ratings to the relationship of their current vocational studies to probable future work plans than did the other groups. They gave "myself" a lower rating as the major influence on their decision to enter their current vocational studies than did any of the other three groups, indicating that attitudes of others were still relatively more predominant than their own opinions in determining their choice of study programs. In contrast, both traditional groups and the nontraditional male group were more confident that their present studies would be related to future work plans. These groups also chose their courses

of study for concrete reasons: the courses would either provide them with skills to secure expected jobs, or they would be prepared for jobs offering good salary opportunities when they graduated. Though the groups of traditional males, nontraditional males and traditional females expected to do postsecondary study, these subjects, as a whole, expected to study in programs related to those which they were currently pursuing in high school, either at postsecondary vocational centers or at four-year colleges.

Relationship of Vocational Teacher and Student Attitudes. Results of the investigation showed that a significant relationship (.05 level) existed between attitudes of vocational educators and students relative to nontraditional work roles. When more than 40 personal background variables and attitudinal variables of the students toward nontraditional studies and work roles were considered as potential discriminant variables, attitudes held by vocational teachers toward nontraditional work roles were the most powerful discriminators in differentiating between groups of students studying in traditional and nontraditional vocational programs. This observation was made separately for both male and female students. When teacher attitudes were added to the discriminant set already contatining student variables, 16% more of the male students and 13% more of the female students were correctly classified as "traditional" or "nontraditional" on the basis of the predictor variables. More significantly, perhaps, when all variables were allowed equal access to a stepwise discriminant function to differentiate between traditional and nontraditional students, the teacher attitudinal variables were those to enter the

discriminant functions, first, for both male and female groups.

Role of Significant Others. Differences in influence of individuals considered as significant others were also key factors in determining students' interest in nontraditional vocational studies. School administrators, counselors and vocational teachers were recognized as significant others by nontraditional students in encouraging their choice of vocational studies. In contrast, the influences of peer groups (both male and female friends) upon their choice of study programs were more highly regarded by traditional students. Exception to these generalities was the influence of female friends cited by nontraditional males.

Both traditional and nontraditional students recognized the influence of parents and other family members upon their choice of studies. The traditional females were more influenced by their mothers, while the nontraditional females were influenced by brothers, or by family members other than parents. Traditional and nontraditional males differed in perceptions of influences of significant others in that nontraditional males cited the support of female friends, counselors and regular teachers more positively.

Internal Pressures from Socialization Processes. This study also provided data which suggest that students who elected nontraditional courses were those who were able to cope with their own internal pressures resulting from socialization processes. At the same time, some evidence also inferred that these pressures continued to operate as the students pursued their nontraditional studies. Indications were that nontraditional students, as a whole, had more

positive attitudes toward nontraditional work roles and toward the suitability of all vocational studies for both sexes, than did traditional students. Nontraditional female students, however, had more bias in their attitudes toward fields of vocational study being open to females, while nontraditional males had the least bias on these attitudes. Nontraditional females elected their programs of study because they would be "interesting, challenging and rewarding" and because they should be entered by females. They did not emphasize extrinsic motivations, such as preparation for immediate jobs or for future monetary purposes, so much as did the traditional females. After election of their study programs, however, the nontraditional females saw little relationship between their studies and probable future plans. Another dimension of career influences for nontraditional females emerged when their career influences were considered in combination for predicting their attitudes toward nontraditional work roles. It was discovered that nontraditional females' perceptions of potential future employers and male friends' attitudes toward their choice of vocational studies were significant in predicting their attitudes. Also, nontraditional females who saw themselves as more feminine were those who also valued the influence of male friends upon their choice of studies.

A probable explanation for this complex interaction of attitudinal influences could be that nontraditional females were in the process of balancing their own interests in exploring challenging new areas of study for females, but at the same time, they were considering practical matters, such as securing a job and attracting a mate, also. The lower ratings on femininity given by the nontraditional females

who valued the influence of male friends, to women in nontraditional jobs clearly indicated the role conflict being experienced by these students.

Relative Influence of Predictor Variables. It was somewhat anticipated that the attitudes of students, themselves, toward nontraditional study and work roles would be the most powerful discriminators between groups of traditional and nontraditional students. These variables, explaining 27% of the variability for males and 41% of the group variability for females, were significant factors in discrimination between the two study groups. But, as already inferred, teacher attitudes relative to these factors were more effective discriminators between nontraditional and traditional groups of students than were the attitudes of the students, themselves. The influence of significant others (peers, teachers, parents, other family members) was also a significant predictor of students' study programs, but these variables were less powerful in discriminating between traditional and nontraditional groups than were either the directly assessed teacher and student attitudinal variables. With the high school population, socioeconomic factors were less important in relationship to their choice of vocational studies than were the other variables considered.

Program Development

These observations demonstrate the need for better development of counseling programs to assist nontraditional female students as they make further realistic explorations of future career plans. This study identified some tools which counselors are already

utilizing effectively prior to recruitment of nontraditional students. Students in school programs where interest inventories and academic aptitude tests were given and interpreted for students had more positive attitudes toward the suitability of all vocational programs for males and females. Increases in student enrollment in nontraditional courses were also correlated with the emphasis which counselors placed upon the administration of such instruments. Positive attitudes among students toward nontraditional studies were also correlated with their being informed of the type and amount of preparation needed for pursuing nontraditional careers. Nontraditional females who were grouped or scheduled into the same sections of their vocational classes for instruction also tended to have more positive attitudes toward nontraditional studies. The practice of holding open houses where nontraditional females could be observed in their studies was also related to higher enrollments for nontraditional females.

As already inferred, the need for better development of counseling programs to assist nontraditional students (particularly females) in making further realistic explorations of future career plans was also indicated. If female high school students are to be retained in their chosen nontraditional programs of study or in related work areas after graduation from high school, they must have continued supportive counseling to assist them in dealing with conflicts in peer attitudes and in job placement. The nontraditional female students in this study, as indicated by their low grades and relatively lower career maturity, may need help in realistically assessing their potential for future study. They may also need more assistance in reinforcing their own attitudes of femininity.

Recommendations

Results of the study support the following recommendations:

1. Vocational teachers in schools having larger enrollments of nontraditional students should be informed of the positive influence which their attitudes have upon the attitudes of their students toward nontraditional studies and nontraditional work roles for males and females. The teachers should continually be encouraged to become more informed regarding the special needs of nontraditional students and should work to develop innovative instructional activities that reinforce the attitudes of these students, as they prepare for future work.
2. Inservice education programs to eliminate sex bias in attitudes of educators should be extended to include all teachers since teachers, other than vocational educators, were cited as significant others in assisting nontraditional students in their choice of vocational studies.
3. Directors of vocational programs should continue to place priority upon the hiring of vocational teachers and counselors who are interested in the needs of students in nontraditional programs. This program variable correlated best with larger enrollments of both nontraditional male and female students in high school programs.
4. Continued and expanded emphasis should be given to the use of results from academic aptitude tests and interest inventories in counseling students regarding their choice of

vocational studies. Further, all students should be informed of the requirements needed for students to pursue vocational studies in nontraditional areas.

5. Counseling services should be expanded from their current emphasis on recruitment of nontraditional students to the provision of more active support for these students in career decision-making processes after they are enrolled in nontraditional programs.

6. Future research activities should be planned and executed which allow for the identification of counseling and program activities which promote the continued interest of nontraditional students in their elected courses of study. To accomplish this objective, model programs with exemplary records for supporting nontraditional students should be either developed or identified. Then, longitudinal follow-up studies of students from these programs should be conducted to determine the influence of program variables upon students' satisfaction in high school studies and later job placement.

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APPENDIX

Instruments

BUREAU OF EDUCATIONAL RESEARCH AND EVALUATION
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Characteristics Of Workers Survey

INSTRUCTIONS: The purpose of this study is to measure your responses toward men and women in certain job situations.

When completing these scales, please make your ratings on how you feel about the situations. On each page of this packet you will find a different job situation to be rated and beneath it a set of scales.

Here is how to use these scales:

If you feel that the situation given at the top of the page is **extremely related** to one end of the scale described by an adjective, you should place your check mark as follows:

GOOD X : ____ : ____ : ____ : ____ : ____ : ____ BAD

OR

GOOD ____ : ____ : ____ : ____ : ____ : ____ : X BAD

If you feel that the situation given at the top of the page is **closely related** to one or the other end of the scale (but not extremely), you should place your check mark as follows:

HOT ____ : X : ____ : ____ : ____ : ____ : ____ COLD

OR

HOT ____ : ____ : ____ : ____ : ____ : X : ____ COLD

If the situation given at the top of the page is **slightly related** to one side as opposed to the other side (but is not really neutral), then you should check as follows:

AGREE ____ : ____ : X : ____ : ____ : ____ : ____ DISAGREE

OR

AGREE ____ : ____ : ____ : ____ : X : ____ : ____ DISAGREE

The placement of your check mark, of course, will depend upon which of the two ends of the scale seems most appropriate to the situation you are rating.

If you consider the situation to be **neutral** on the scale (both sides of the scale **equally related** with the situation), OR if the scale is **unrelated** to the concept, then you should place your check mark in the middle space.

SAFE ____ : ____ : ____ : X : ____ : ____ : ____ DANGEROUS

IMPORTANT:

1. Place your check mark in **the middle of the space,** not on the boundaries.

____ : X : ____ : ____ : ____ : X : ____

THIS NOT THIS

2. Be sure to check every scale for every situation - DO NOT OMIT ANY.

3. Never put more than one check mark on a single scale.

4. Make each item a separate and independent rating. Work at fairly high speed. Do not worry over or think too long about any one item. It is your first impressions, your immediate "feelings" about the items that we want. On the other hand, please do not be careless, because we want your honest impressions.

WORK SITUATION NO. 1

Your school is building a new gymnasium. From your classroom window you can see a worker welding steel beams in place at the top of the structure. Finishing on one end the worker walks the beam to the other end. Looking closer, you realize that this worker is a woman.

Use the scales below to rate your feelings about this situation.

GOOD	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	BAD
STRONG	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	WEAK
EXCITABLE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	CALM
WISE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	FOOLISH
BEAUTIFUL	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	UGLY
MASCULINE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	FEMININE
POSITIVE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	NEGATIVE
ACTIVE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	PASSIVE
HARD	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	SOFT
COMPETENT	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	INADEQUATE

WORK SITUATION NO. 2

You accompany your younger sister to her first day at a day care center. Upon registering you learn that the aide assigned for working with your sister is a man.

Use the scales below to rate your feelings about this situation.

GOOD	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	BAD
STRONG	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	WEAK
EXCITABLE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	CALM
WISE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	FOOLISH
BEAUTIFUL	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	UGLY
MASCULINE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	FEMININE
POSITIVE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	NEGATIVE
ACTIVE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	PASSIVE
HARD	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	SOFT
COMPETENT	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	INADEQUATE

WORK SITUATION NO. 3

You have boarded a Delta Airline 727 for your first trip in an airplane. It is brought to your attention that the senior pilot for this flight is a woman.

Use the scales below to rate your feelings about this situation.

GOOD	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	BAD
STRONG	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	WEAK
EXCITABLE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	CALM
WISE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	FOOLISH
BEAUTIFUL	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	UGLY
MASCULINE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	FEMININE
POSITIVE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	NEGATIVE
ACTIVE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	PASSIVE
HARD	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	SOFT
COMPETENT	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	INADEQUATE

WORK SITUATION NO. 4

You become ill and have to enter the hospital. As you settle in your room and are prepared for some preliminary tests, you find that the nurse assigned to your care is a man.

Use the scales below to rate your feelings about this situation.

GOOD	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	BAD
STRONG	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	WEAK
EXCITABLE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	CALM
WISE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	FOOLISH
BEAUTIFUL	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	UGLY
MASCULINE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	FEMININE
POSITIVE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	NEGATIVE
ACTIVE	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	PASSIVE
HARD	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	SOFT
COMPETENT	_____ :	_____ :	_____ :	_____ :	_____ :	_____ :	_____	INADEQUATE

WORK SITUATION NO. 5

On the way to school your car develops engine trouble. The mechanic sent out to assist you is a woman. Use the scales below to rate your feelings about this situation.

GOOD	_____ : _____ : _____ : _____ : _____ : _____ : _____	BAD
STRONG	_____ : _____ : _____ : _____ : _____ : _____ : _____	WEAK
EXCITABLE	_____ : _____ : _____ : _____ : _____ : _____ : _____	CALM
WISE	_____ : _____ : _____ : _____ : _____ : _____ : _____	FOOLISH
BEAUTIFUL	_____ : _____ : _____ : _____ : _____ : _____ : _____	UGLY
MASCULINE	_____ : _____ : _____ : _____ : _____ : _____ : _____	FEMININE
POSITIVE	_____ : _____ : _____ : _____ : _____ : _____ : _____	NEGATIVE
ACTIVE	_____ : _____ : _____ : _____ : _____ : _____ : _____	PASSIVE
HARD	_____ : _____ : _____ : _____ : _____ : _____ : _____	SOFT
COMPETENT	_____ : _____ : _____ : _____ : _____ : _____ : _____	INADEQUATE

WORK SITUATION NO. 6

You have a job interview with a local company. The receptionist who greets you when you enter the office is a man. Use the scales below to rate your feelings about this situation.

GOOD	_____ : _____ : _____ : _____ : _____ : _____ : _____	BAD
STRONG	_____ : _____ : _____ : _____ : _____ : _____ : _____	WEAK
EXCITABLE	_____ : _____ : _____ : _____ : _____ : _____ : _____	CALM
WISE	_____ : _____ : _____ : _____ : _____ : _____ : _____	FOOLISH
BEAUTIFUL	_____ : _____ : _____ : _____ : _____ : _____ : _____	UGLY
MASCULINE	_____ : _____ : _____ : _____ : _____ : _____ : _____	FEMININE
POSITIVE	_____ : _____ : _____ : _____ : _____ : _____ : _____	NEGATIVE
ACTIVE	_____ : _____ : _____ : _____ : _____ : _____ : _____	PASSIVE
HARD	_____ : _____ : _____ : _____ : _____ : _____ : _____	SOFT
COMPETENT	_____ : _____ : _____ : _____ : _____ : _____ : _____	INADEQUATE

BUREAU OF EDUCATIONAL RESEARCH AND EVALUATION
MISSISSIPPI STATE UNIVERSITY

Sex Role Attitude Survey*

SEX: _____ RACE: _____ AGE: _____ MARITAL STATUS: _____ DEGREE _____

POSITION (Grade-Subject Area): _____ EXPERIENCE (Total-in years): _____

1. Which sex has more advantages and privileges in this society? (mark one)
   _____ Men have many more than women
   _____ Men have more than women
   _____ There are advantages and disadvantages for each sex
   _____ Women have more advantages than men
   _____ Women have many more advantages than men

2. What is the **best** way for most women to develop their potential? (mark one)
   _____ By being good wives and mothers only
   _____ By taking jobs that utilize their uniquely feminine skills and qualities
   _____ By taking jobs that fulfill them as individuals
   _____ By joining women's groups that will develop their consciousness as women
   _____ By combining marriage, motherhood and work
   _____ By combining marriage or a love relationship and work

3. What is the **best** way for most men to develop their potential? (mark one)
   _____ By being good fathers and husbands only
   _____ By taking jobs that utilize their uniquely masculine skills and qualities
   _____ By taking jobs that fulfill them as individuals
   _____ By joining men's groups that will develop their consciousness as men
   _____ By combining marriage, fatherhood and work
   _____ By combining marriage or a love relationship and work

For entries 4 - 26 utilize the Agree-Disagree scale below as your responses:
4 means you "Agree Strongly"
3 means you "Agree Somewhat"
2 means you "Disagree Somewhat"
1 means you "Disagree Strongly"
(Make your response by CIRCLING the appropriate number.)

4. The communications media (for example, television and the press) degrade women by portraying them as sex objects and/or mindless dolls.	4	3	2	1
5. Families should have public day-care facilities easily available to them.	4	3	2	1
6. Salaries, promotions and hiring should be equal for men and women.	4	3	2	1

*Adapted from: J. C. Penney Company, Inc.—Educational Relations Department - FORUM Spring/Summer 1973. Reprinted with Permission.

7. Being attractive to and supportive of men should be an important goal of a woman.

4 : 3 : 2 : 1

8. Women are exploited in this country as much as minority groups are.

4 : 3 : 2 : 1

9. A bright woman should conceal her intelligence, otherwise she will hinder her chances of dating and marriage.

4 : 3 : 2 : 1

10. Little children need their own mothers, full-time.

4 : 3 : 2 : 1

11. A man who cries is not very masculine.

4 : 3 : 2 : 1

12. The institution of marriage in its present form is more inhibiting than it is fulfilling.

4 : 3 : 2 : 1

13. The special privileges that men extend to women more than offset any discrimination they practice against them.

4 : 3 : 2 : 1

14. Children's books should not promote the traditional roles for men and women.

4 : 3 : 2 : 1

15. A woman who argues logically and intelligently in her everyday interactions is not very feminine.

4 : 3 : 2 : 1

16. Many women who do the same work as their male colleagues earn substantially less money.

4 : 3 : 2 : 1

17. Being attractive to and supportive of women should be an important goal of a man.

4 : 3 : 2 : 1

18. The housewife-mother role does not really provide women with enough opportunity for self-fulfillment.

4 : 3 : 2 : 1

19. A young man who enjoys cooking, sewing and taking care of young children should discuss these interests very cautiously, since he is likely to be considered effeminate.

4 : 3 : 2 : 1

20. Preferential treatment for women in hiring and promotion is appropriate to make up for past discrimination.

4 : 3 : 2 : 1

21. I usually find the things men talk about more interesting than the things women talk about.

4 : 3 : 2 : 1

22. My religious convictions are such that I believe the man (husband/father) should be the final authority in matters concerning the family.

4 : 3 : 2 : 1

23. Women should be encouraged to prepare themselves to work in jobs traditionally held by men.

4 : 3 : 2 : 1

24. As a female, I would not expect to earn the same salary as a man who does the same work.

4 : 3 : 2 : 1

25. Men should be encouraged to prepare themselves to work in jobs traditionally held by women.

4 : 3 : 2 : 1

26. I have never given much thought to sex role stereotyping.

4 : 3 : 2 : 1

Some people believe that personality differences between the sexes are **biological** in origin; others think they are **learned**; others say there are no differences at all. Which of the statements listed best expresses your viewpoint about the traits in entries 27-33. Utilize the following scale for each trait. (Mark only one for each trait.)

	More Common In Men			More Common In Women	
	Biological Reasons	Cultural Reasons	Equally Common in Both Sexes	Biological Reasons	Cultural Reasons
27. Aggressiveness	_____	_____	_____	_____	_____
28. Capacity for deep feelings	_____	_____	_____	_____	_____
29. Independence	_____	_____	_____	_____	_____
30. Objectivity and rationality	_____	_____	_____	_____	_____
31. Nurturing capacity	_____	_____	_____	_____	_____
32. Ability to reason abstractly	_____	_____	_____	_____	_____
33. Empathy and intuition	_____	_____	_____	_____	_____

34. Mrs. R. a mother of 3 children (ages 2, 5 and 8), works full-time. Which reason given below do you feel justifies her working full-time? (mark one)
    - _____ Working full-time is necessary for advancement in a career.
    - _____ It is her responsibility to provide support for her family.
    - _____ She feels her work is fulfilling.
    - _____ If she is currently the only parent, she has to work to provide income for her family.
    - _____ In general, she seems to be more concerned with herself than her children.

35. Judy, a ninth grader, has been told by her mother to quit playing football in the neighborhood. From her perspective, which reason justifies the mother's directive? (mark one)
    - _____ Playing football is unladylike.
    - _____ Girls are more easily hurt than boys.
    - _____ Boys won't date her if they think she is a tomboy.
    - _____ Her figure will become to muscular to be attractive.
    - _____ None.

36. Suppose **you** have been offered a job that would give you substantially more satisfaction. What reaction by your spouse or girlfriend/boyfriend would be required to make you refuse the job? (mark one)
    - _____ Slight unhappiness
    - _____ Moderate unhappiness
    - _____ Extreme unhappiness
    - _____ Refusal to continue the relationship
    - _____ I would not be influenced

37. Who should do the housework (cleaning, cooking, yard work, etc.) when both the wife and husband work full-time? (mark one)
    - _____ The wife should do all of it.
    - _____ The husband should do all of it.
    - _____ The wife should do over half of it.
    - _____ The husband should do over half of it.
    - _____ The work should be split 50-50.

38. When both wife and husband work full-time, who should handle routine child care? (mark one)
_____ The wife should do all of it.
_____ The husband should do all of it.
_____ The wife should do over half of it.
_____ The husband should do over half of it.
_____ The work should be split 50-50.

39. Suppose you are a woman in medical school. After your first year you discover you rank first in the class. What would **you** do? (mark one)
_____ Strive to maintain your first place ranking.
_____ Drop to second and marry whoever is in first place.
_____ Drop to an unnoticeable ranking.
_____ Drop out since you'll never get married if people know your standing.

40. Mr. X has two applications for a Chemical Technician position, Miss M and Mr. G. Both have just completed their B.S. in Chemistry at major universities and each is engaged to be married in six months. Although Miss M has a higher gradepoint, both individuals are clearly qualified for the job. Mr. X selects the male applicant. Which reason do you feel best explains Mr. X's choice? (mark one)
_____ Women are unstable employees.
_____ Since Miss M most likely will move with her husband, a vacancy would be created in a short time.
_____ As soon as Miss M has children, she will probably quit.
_____ Women are basically dedicated to a home and family, not a career.
_____ Mr. X is biased against women.

41. Mr. and Mrs. T share all household tasks and the care of their three small children. Both work half-time in order to maintain this family relationship. What is your reaction to Mr. T? (mark one)
_____ I could never respect such a man.
_____ I think doing housework and child care takes away from his masculinity.
_____ I admire him but would never want a marriage like that.
_____ I admire him and wish I could have a marriage like that.
_____ No feelings one way or the other.

42. John and Mary have no children since both want to actively pursue their careers. Mary is offered an excellent promotion but it would require moving to another state. What should Mary do? (mark one)
_____ Clearly take the promotion.
_____ Take the promotion if her husband is willing to look for another job.
_____ Take the promotion only if her husband has a job in the new location.
_____ Turn down the promotion and stay where her husband's job is.

43. Tom, an eight year old, regularly plays with his sister's dolls. Which reason would convince you Tom's doll-playing is acceptable? (mark one)
_____ As a potential father, make-believe parental experiences are productive.
_____ He eventually wants to become a pediatrician.
_____ He enjoys it.
_____ As long as Tom plays with masculine toys, his doll-playing can be overlooked.
_____ None, doll-playing by an eight year old boy is effeminate.

CAREER SUITABILITY INDEX

Below are listed 22 career areas for which vocational training is offered at the high school level in Mississippi. Decide how appropriate these fields are for both males and females to study. Make your decision on whether you perceive these vocational areas as being an area of work that is Appropriate OR Inappropriate for males, as well as Appropriate OR Inappropriate for females. Be sure to rate both males and females for each vocational area.

	MALES		FEMALES	
	APPROPRIATE	INAPPROPRIATE	APPROPRIATE	INAPPROPRIATE
1. Agriculture				
2. Air Conditioning				
3. Automobile Mechanic				
4. Bricklaying (Masonry)				
5. Carpentry				
6. Child Care				
7. Clerical-Office Practices				
8. Commercial Art				
9. Commercial Sewing				
10. Cosmetology				
11. Dental Assistant				
12. Diesel Mechanics				
13. Electricity				
14. Food Services				
15. Home Economics				
16. Interior Design				
17. Nursing				
18. Plumbing or Pipe Fitting				
19. Radio & TV Repair				
20. Secretarial Practices				
21. Small Engine Repair				
22. Welding				

Appendix 4

Survey of Male-Female Enrollments in Secondary Vocational Programs

Part I

1. How many students are enrolled in the vocational programs at this school?

   _____ number of females enrolled

   _____ number of males enrolled

   _____ Total number enrolled

2. Indicate which of the following programs are offered in your vocational center. Give enrollments by sex, and total enrollment, for each program that is offered. (Be sure to specify programs you offer that may not be listed.)

PROGRAM	ENROLLMENT FEMALE	MALE	TOTAL
Agricultural Mechanics			
Agricultural Production			
Food Distribution			
Food Management, Production, and Services			
Food Services			
Food and Nutrition			
General Merchandise			
Nursing Assistant			
Occupational Home Economics			
Care and Guidance of Children			
Filing, Office Machines, and Clerical Occupations			
Air-Conditioning			
Appliance Repair			
Auto Mechanics			
Body and Fender Repair			
Carpentry			
Drafting Occupations			

PROGRAM	ENROLLMENT FEMALE	MALE	TOTAL
Electricity	_____	_____	_____
Graphic Arts Occupations	_____	_____	_____
Masonry	_____	_____	_____
Plumbing and Pipe-Fitting	_____	_____	_____
Small Engine Repair	_____	_____	_____
Upholstery	_____	_____	_____
Welding and Cutting	_____	_____	_____
Others: (Please specify)			
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

3. In what school year did this center begin its operation? _____

Part II

Below are several items relating to approaches that schools might use to help eliminate sex biases in their vocational programs. Rate the degree of emphasis, or non-emphasis, your vocational program has placed on each of these items.

5 means "Strong Emphasis"
4 means "Considerable Emphasis"
3 means "Moderate Emphasis"
2 means " Slight Emphasis"
1 means " No Emphasis"

(Make your response by CIRCLING the appropriate number.)

1. Using role models to show students that men and women can be successful in non-traditional fields. 5 4 3 2 1

2. Screening instructional materials to make sure they do not contain traditional sex stereotyping of occupations. 5 4 3 2 1

3. Holding in-service workshops for all teachers aimed toward reducing sex biases in program recruitment and instructional procedures. 5 4 3 2 1

4. Employing counselors and teachers who understand the needs of students who are interested in non-traditional careers.

5. Advertising your programs to the effect that all students recognize that they have access to a full range of opportunities in vocational programs as well as in the labor market.

6. Actively recruiting students for entry into non-traditional programs.

7. Collecting and disseminating labor market data that will allow students to make meaningful vocational decisions.

8. Providing the same objective data on all occupations to all students; e.g., current and future salary ranges and potential, projected growth, working conditions, etc.

9. "Open Houses" for younger students so they can see the programs in action as well as observing students in non-traditional areas.

10. Informing students of reasons why they might consider entering non-traditional vocational area.

11. Advising students of the vocational preparation needed, and available, in non-traditional fields.

12. Providing occupational information to parents of vocational students, especially those who are interested in non-traditional areas.

13. Encouraging consultation between school personnel and parents in order to provide help in student's decision making.

14. Grouping girls who are enrolled in non-traditional areas into the same section of a course.

15. Encouraging students, especially girls, to take more math and science courses while in the regular school program.

16. Encouraging students to take vocational aptitude tests, interest inventories, or other similar instruments.

5 : 4 : 3 : 2 : 1

Appendix 5

VOCATIONAL STUDENT BACKGROUND SURVEY

DIRECTIONS: Below are several questions related to your vocational interests and career plans. Please read each statement carefully before making your response. Be sure to answer all questions.

1. What is your sex?

_____ female

_____ male

2. What is your race?

_____ white

_____ non-white

3. What is your age? _____

4. What is (was) the main occupation of your parents? (Mark only one for each parent.)

FATHER	MOTHER	
_____	_____	Clerical or sales (bookkeeper, secretary, real estate saiesman, etc.)
_____	_____	Skilled craftsman or foreman (baker, electrician, mechanic, factory foreman, etc.)
_____	_____	Professional (pharmacist, engineer, physician, artist, etc.)
_____	_____	Teacher or other educator (school counselor, principal, etc.)
_____	_____	Laborer (gas station attendant, etc.)
_____	_____	Service worker (policeman, waiter, barber, etc.)
_____	_____	Technician (draftsman, nurse, laboratory technician, etc.)
_____	_____	Semiskilled worker (truck driver, factory machine operator, meat cutter, domestic worker, etc.)
_____	_____	Proprietor, manager, official, executive (Manager, company officer, contractor, etc.)
_____	_____	Farmer
_____	_____	Homemaker
_____	_____	Armed Services
_____	_____	Other
_____	_____	I don't know

5. Do both of your parents live at home? _____ yes _____ no

6. If only one of your parents live at home, indicate which one. _____ Mother

_____ Father

7. Which <u>one</u> of the following <u>best</u> describes your decision to enter the program you are now studying? (Mark one.)

_____ I want to obtain skills to enable me to find employment.

_____ I chose this vocational area because I feel that more people of my sex should enter it.

_____ This work would be different, challenging, and rewarding.

_____ My work experiences in this area led me to believe that I could be successful in it.

_____ My best friend is enrolled in this program.

_____ My parents encouraged me to enter this program.

_____ Most of my friends are in this program.

_____ I like the teachers in this program.

9. When did you make the decision to enter this vocational area? (Mark one.)

_____ Before 7th grade

_____ 7th - 8th grade

_____ 9th - 10th grade

_____ 11th - 12th grade

_____ Don't exactly remember

10. Which of the following choices comes closest to describing your grades in all courses taken in high school? (Mark one.)

_____ Mostly A's (or equivalent)

_____ Mostly A's and B's (or equivalent)

_____ Mostly B's and C's (or equivalent)

_____ Mostly C's and D's (or equivalent)

_____ Mostly D's and below (or equivalent)

11. Which one of the following best describes your paid work experience(s)? (Mark one.)

_____ I have never worked for pay.

_____ I am presently working part-time.

_____ I am presently working full-time (35 or more hours per week).

_____ I am not working now but have had work during the summer.

_____ I am not working now but have worked after school.

12. What is the total number of years you have worked for pay at a full-time or part-time job? (Mark one.)

_____ None

_____ Less than one year

_____ Approximately 1 year

_____ Approximately 2 years

_____ Approximately 3 years

_____ More than 3 years

13. How closely related is the full-time or part-time job you have to the vocational area you are now studying? (Circle one number: 5 means "Very Closely Related"; 4 means "Related"; 3 means "Moderately Related"; 2 means "Only Slightly Related"; 1 means "Not Related At All". If you do not have a job circle 1.)

5 : 4 : 3 : 2 : 1

14. How closely related is the vocational program you are now studying to the job you expect to get after you finish high school? (Circle one number: 5 means "Very Closely Related"; 4 means "Related"; 3 means "Moderately Related"; 2 means "Only Slightly Related"; 1 means "Not Related At All")

5 : 4 : 3 : 2 : 1

15. How confident are you that in five years you will be working in the occupational field that you are now studying? (Circle one number: 5 means "Very Confident"; 4 means "Confident"; 3 means "Moderately Confident"; 2 means "Only A Little Confident"; 1 means "Not Confident At All")

5 : 4 : 3 : 2 : 1

16. What are your plans once you finish high school? (Mark one.)

_____ Undecided

_____ Attend a 2-year college

_____ Attend a 4-year college

_____ Go to work in the occupational area I am now studying

_____ Go to work in another, different occupation

_____ Go to trade school, business college, etc.

_____ Continue my training in a vocational-technical center

_____ Enter the Armed Services

_____ Marriage

17. What reaction did you receive from each of the three groups of people below when you expressed an interest in the vocational area you are now studying? Choose one of the reactions listed and place its number in the space provided next to each person. Example: If your parents were very pleased with your interest, you would place 1 in the space next to Parents. It is possible that all three groups might have had the same reaction, so it is permissible to place the same number in all three spaces.

A. Parents _____

B. Friends _____

C. Educators _____

1. They were very pleased.
2. They encouraged my work.
3. They were impressed.
4. They were amazed and surprised.
5. They were opposed.
6. They didn't care.
7. They laughed.

Following are five questions concerning how you see the influence or importance of several people and factors on your decision to enter the vocational area you are now studying. These factors are not all considered equally important; some are very important or influential to some people but of little importance or influence to others. Read each statement carefully and indicate how important it is for you.

5 means "Very Important" or "Very Influential"

4 means "Important" or "Influential"

3 means "Moderately Important" or "Moderately Influential"

2 means "Of Little Importance" or "Of Little Influence"

1 means "No Importance" or "No Influence"

(Show your rating of each factor by CIRCLING the appropriate number.)

18. Listed below are several people who may have influenced you in your decision to enter the vocational area you are now studying. Rate the influence of each person.

My Father	5	4	3	2	1
My Mother	5	4	3	2	1
My Brother	5	4	3	2	1
My Sister	5	4	3	2	1
My Female Friends	5	4	3	2	1
My Male Friends	5	4	3	2	1
My Counselor(s)	5	4	3	2	1
My Regular Teacher(s)	5	4	3	2	1
My Vocational Teacher(s)	5	4	3	2	1
My School Principal	5	4	3	2	1
My Employer (Past or Present)	5	4	3	2	1
Myself	5	4	3	2	1

19. Listed below are several factors which may have influenced you in your decision to enter the vocational area you are now studying. Rate the influence of <u>each</u> factor.

I chose this vocational area because it . . .

	5	4	3	2	1
offers good salary opportunities.	:	:	:	:	
offers job opportunities close to home.	:	:	:	:	
offers job opportunities away from home.	:	:	:	:	
offers steady employment.	:	:	:	:	
is related to work I have had before.	:	:	:	:	
will allow me to make marriage plans sooner.	:	:	:	:	
was available at my school and I will be looking for work when I finish high school.	:	:	:	:	
has good teachers and counselors.	:	:	:	:	
is related to my parent's occupation.	:	:	:	:	
has a high prestige value in my community.	:	:	:	:	
sounded interesting.	:	:	:	:	

20. Rate the degree of importance of the attitudes below which, in your opinion, would keep many girls, or women, from studying to be an automobile mechanic. Rate the importance of each attitude.

Attitudes of Male Friends	5	4	3	2	1
Attitudes of Female Friends	5	4	3	2	1
Attitudes of Mother	5	4	3	2	1
Attitudes of Father	5	4	3	2	1
Attitudes of Other Family Members	5	4	3	2	1
Attitudes of Co-Workers	5	4	3	2	1
Attitudes of Employer	5	4	3	2	1
Attitudes of Community	5	4	3	2	1
Attitudes of Teachers	5	4	3	2	1
Attitudes of Counselors	5	4	3	2	1
Attitudes of School Administrators	5	4	3	2	1

21. Rate the degree of importance of the attitudes below which, in your opinion, would keep many boys, or men, from studying to be a secretary. Rate the importance of each attitude.

Attitudes of Male Friends	5	4	3	2	1
Attitudes of Female Friends	5	4	3	2	1
Attitudes of Mother	5	4	3	2	1
Attitudes of Father	5	4	3	2	1
Attitudes of Other Family Members	5	4	3	2	1
Attitudes of Co-Workers	5	4	3	2	1
Attitudes of Employer	5	4	3	2	1
Attitudes of Community	5	4	3	2	1
Attitudes of Teachers	5	4	3	2	1
Attitudes of Counselors	5	4	3	2	1
Attitudes of School Administrators	5	4	3	2	1